

A. T. McCLURE.
Improvement in Electro-Motors for Sewing-Machines.
No. 130,385.

Patented Aug. 13, 1872.

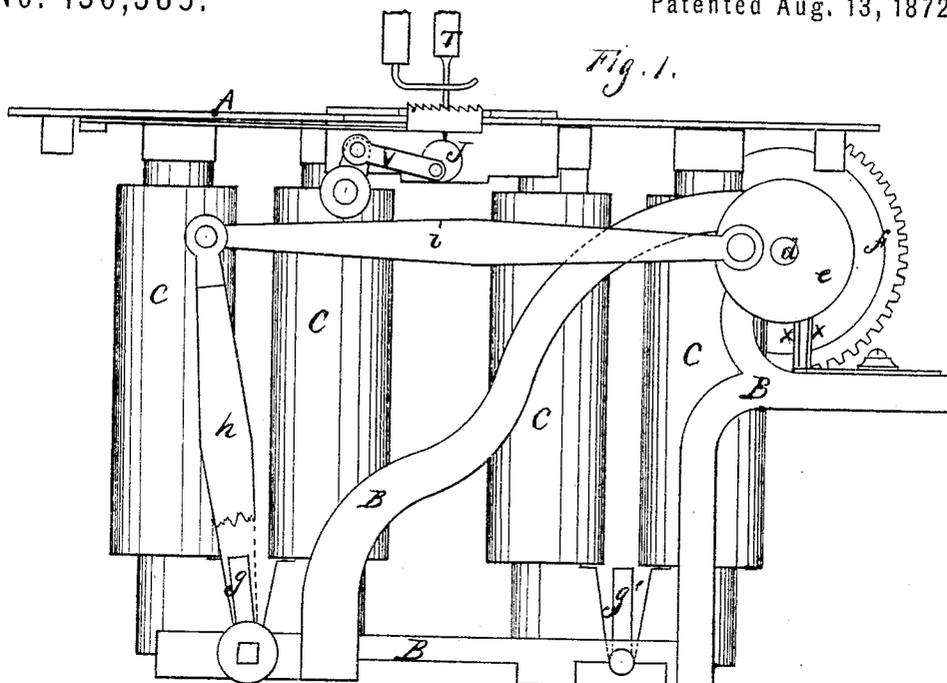


Fig. 1.

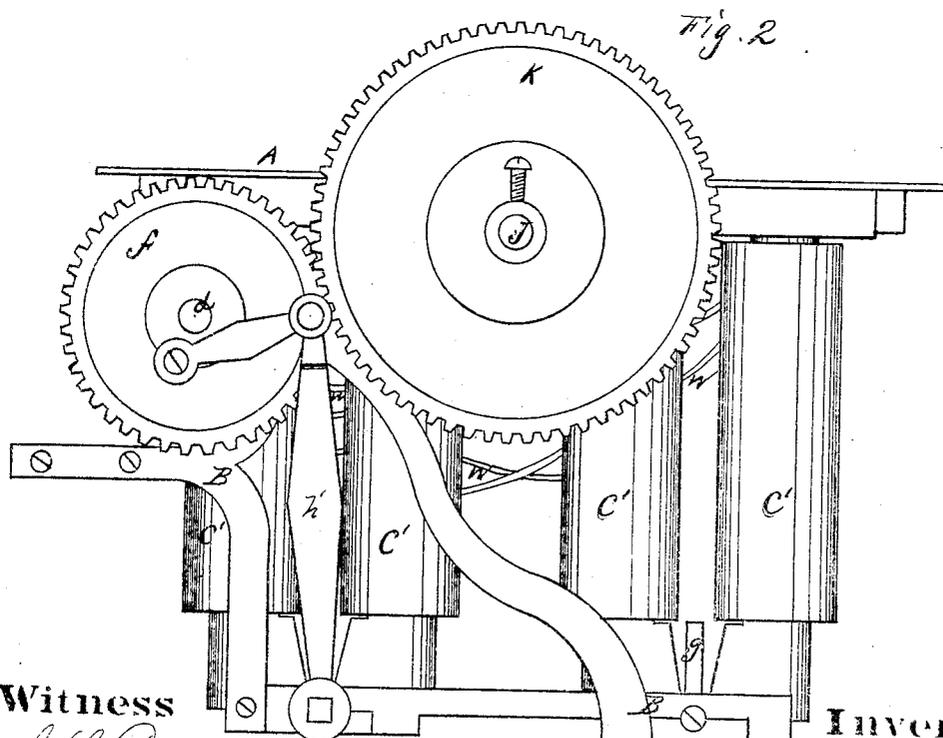


Fig. 2.

Witness
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UNITED STATES PATENT OFFICE.

ABEL T. McCLURE, OF SAN FRANCISCO, CALIFORNIA, ASSIGNOR TO HIMSELF,
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McBRIDE, AND SAMUEL D. WOOD, OF SAME PLACE.

IMPROVEMENT IN ELECTRO-MOTORS FOR SEWING-MACHINES.

Specification forming part of Letters Patent No. 130,385, dated August 13, 1872.

SPECIFICATION.

To all whom it may concern:

Be it known that I, ABEL T. McCLURE, of San Francisco, San Francisco county, State of California, have invented Improvements in Electro-Magnetic-Power Sewing-Machines; and I do hereby declare the following description and accompanying drawing are sufficient to enable any person skilled in the art or science to which it most nearly appertains to make and use my said invention and improvements without further invention or experiment.

My invention relates to an improved combination and arrangement, by which I am enabled to employ the power of electro-magnets for driving sewing-machines in a simple and economical manner. My invention consists in employing the electro-magnetic apparatus which is covered by Letters Patent No. 116,770, which were granted to George Stevens and James W. Moyle, of Cincinnati, Ohio, on the 4th day of July, 1871, for operating fans, and connecting it with a pivoted needle-arm by suitable gearing, so that the motion will be transmitted and communicated to the needle-arm and also to the feeding mechanism.

Figure 1 is an end view of my machine, showing the operating levers and cranks from one end. Fig. 2 is an end view, showing the gearing. Fig. 3 is a side view.

A represents the cloth-plate of a sewing-machine, which in the present instance is represented larger than necessary, in order to obviate the necessity of representing the table. Depending from the bottom of this plate, and supported in a frame, B, are the electro-magnets C C C' C', which are arranged in pairs in the manner described in Stevens' and Moyle's patent above mentioned, two sets of two pairs each being used. A shaft, *d*, which is supported in boxes on the side of the frame B, has secured to its inner end a crank-wheel, *e*, while at its outer end a toothed-wheel, *f*, is secured. The inner gudgeon of the armature *g* is extended outside of the frame, and has a vertical arm, *h*, secured to it. A pitman, *i*, connects the upper end of this arm with the crank-wheel *e*, so that when the armature *g* vibrates, motion will be communicated to the

shaft *d* through the pitman *i*. The gudgeon of the armature *g'*, which is operated by the other set of electro-magnets, is extended upon the opposite side of the frame, and is connected in a similar manner with the toothed wheel *f*. By this means the power of both sets of magnets is concentrated upon the shaft *d*. A shaft, J, which is of sufficient length to extend from the point where the needle passes through the cloth-plate to the rear end of the machine, is supported in boxes on the under side of the plate A between the two sets of magnets. To the rear end of this shaft is secured a large toothed wheel, K, which engages with the smaller toothed wheel *f*, from which it receives motion, and through which the shaft J is caused to revolve. The needle-arm L is secured to the fixed arm or shank M at or near its middle by a screw or pin, *n*, upon which it vibrates as upon a pivot. The rear end of this needle-arm is curved downward, and is connected to a guide-plate, *o*, by a pitman or connecting-bar, *p*. This guide-plate is supported in lugs *q* on the side of the shank R, moving at each end through slots in the lugs, as shown, and a reciprocating motion is communicated to it by a connecting-rod, S, which passes down through the plate or table A, and has its lower end connected with a crank or eccentric on the shaft J. By this arrangement the rotation of the shaft J will cause the needle-arm to rock about the pivot at H, and thus operate the needle-bar T with which its outer extremity is loosely connected. The mechanism, by means of which the cloth is fed forward under the needle, is operated from the end of the shaft J by means of a short shaft, *u*, which is connected with a crank on the end of shaft J by a rod, V. W W are the wires with which the connection with the battery is made, so as to charge the magnets C C C' C'. The circuit-breakers *x x* are connected with the tappets on the shaft *d* in the usual manner. The toothed wheel K upon the outer end of the shaft J is adjustable upon the shaft moving upon a feather, so that it can be disengaged from the wheel *f* by shifting it upon the shaft when desired. This wheel has a hub or face-pulley, *z*, outside of it, around which a belt can pass

when it is desired to disconnect the battery and run the machine by foot or other power.

By this means I produce a sewing-machine which can be run either by electro-magnetic power, or by means of a treadle in the usual way, as the operator may see fit. The arrangements of the parts are extremely simple, and permit of the machines being operated by a less number of cups than any other arrangement with which I am familiar. In fact, four cups of a Grove's battery will produce sufficient power to run a machine upon any ordinary work.

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

1. The two sets of electro-magnets C C and C' C' arranged in sets of two pairs each, and having their armatures *g g'* connected with the

shaft *d* at opposite ends by means of pitmen *i* and *h* and *h'* and crank-wheels *e* and *f*, substantially as described.

2. The adjustable wheel K provided with the face-pulley *z*, in combination with the prolonged shaft, for the purpose of allowing a change of motor, as described.

3. The electro-magnets C and C', in combination with the shaft *d* with its toothed wheel *f*, shaft J and its toothed wheel L, or the equivalents of these two wheels, connecting-bar S, and slide *o*, all constructed and arranged as and for the purpose set forth.

In witness whereof I hereunto set my hand.
ABEL T. McCLURE.

Witnesses:

J. L. BOONE.

A. L. HARRIS.