

(No Model.)

2 Sheets—Sheet 1.

T. A. MACAULAY.
SEWING MACHINE.

No. 265,687.

Patented Oct. 10, 1882.

Fig. 2.

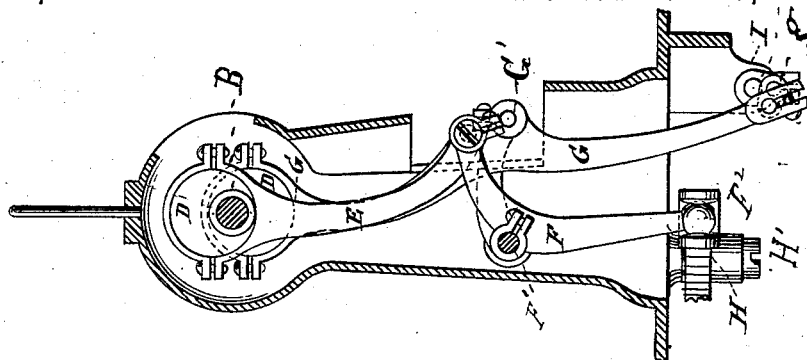
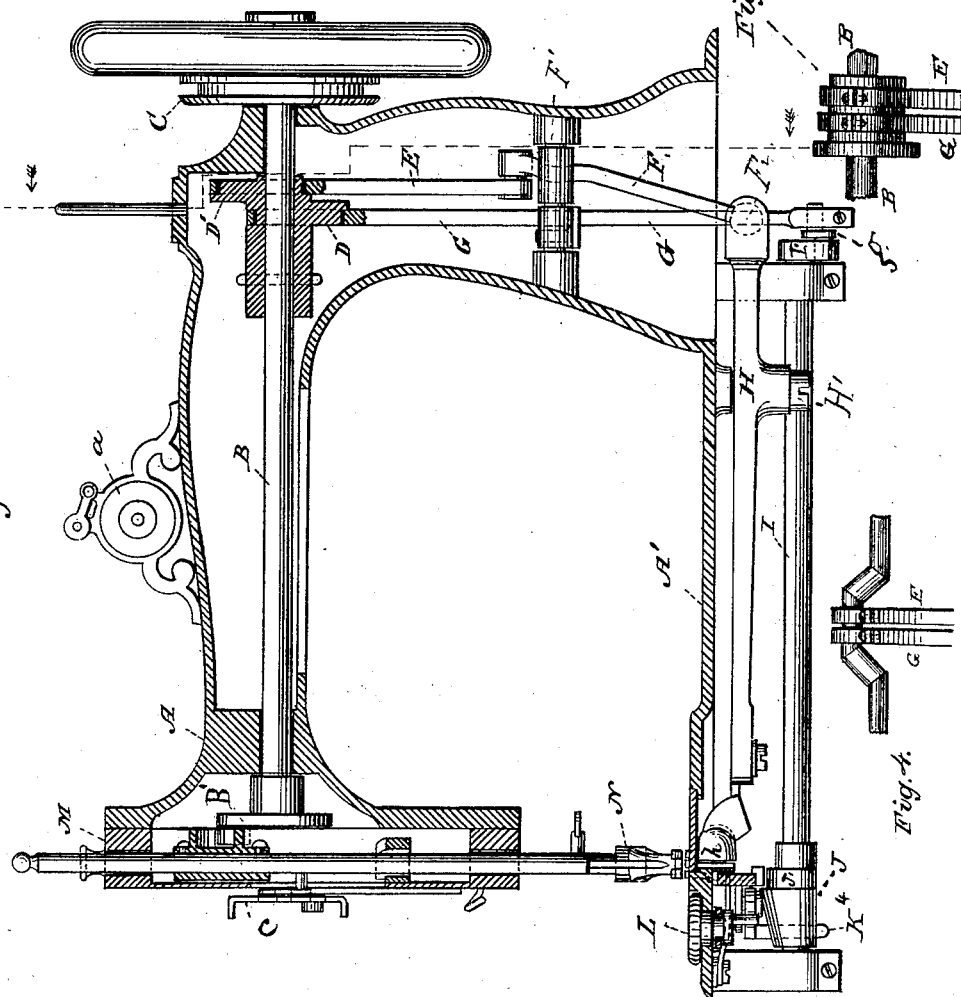


Fig. 1.



Witnesses:
J. S. Brown.
Henry A. Holt.

Inventor:
Thos. A. Macaulay

(No Model.)

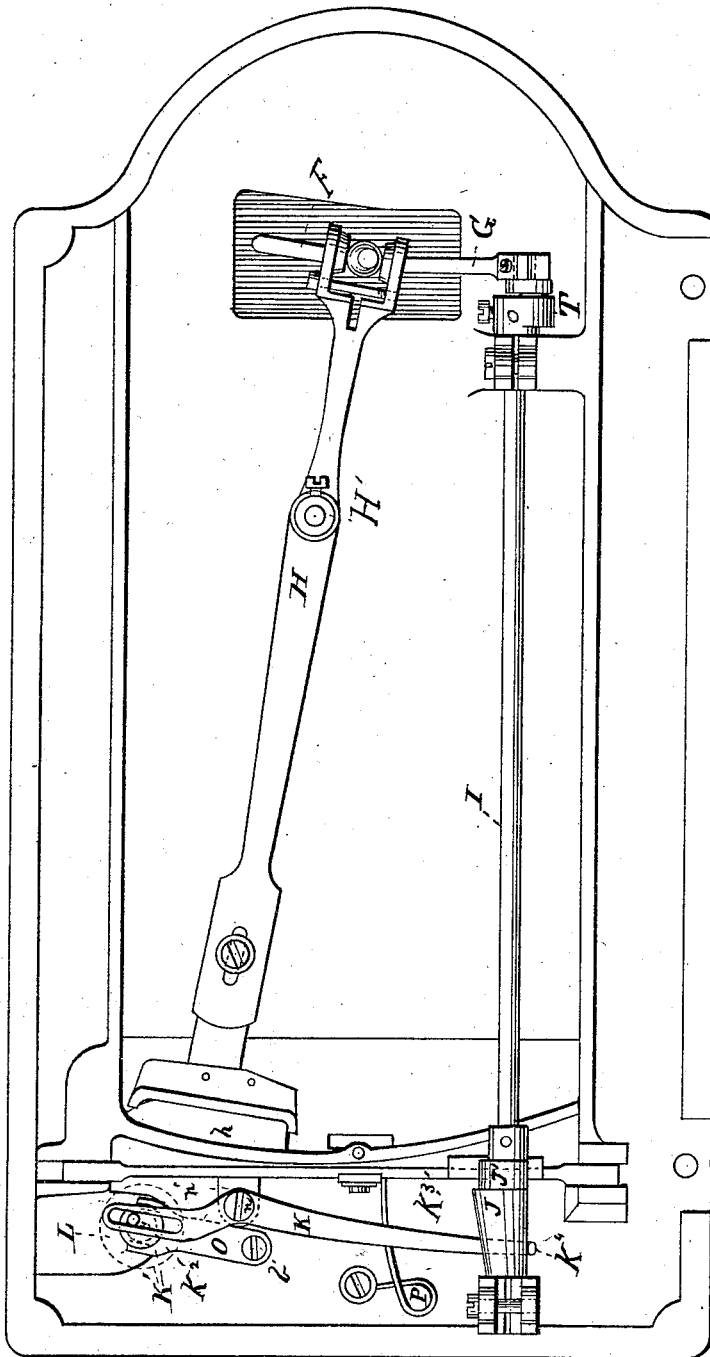
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Fig. 3.



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Inventor:—
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UNITED STATES PATENT OFFICE.

THOMAS A. MACAULAY, OF NEW YORK, N. Y.

SEWING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 265,687, dated October 10, 1882.

Application filed July 1, 1882. (No model.)

To all whom it may concern:

Be it known that I, THOMAS A. MACAULAY, of the city, county, and State of New York, have invented new and useful Improvements in Sewing-Machines, of which the following is a specification.

In the accompanying drawings similar letters refer to like parts.

My invention relates to that class of sewing-machines in which a main rotary shaft in the bracket-arm rotates a feed-shaft located beneath the bed-plate and operates a shuttle-driving lever by intervening mechanism, hereinafter more fully described.

In the drawings, Figure 1 is a side elevation. Fig. 2 is a sectional end view through the dotted line indicated by the arrows in Fig. 1. Fig. 3 represents a bottom view of the bed-plate, showing the shuttle-lever and the feed-operating mechanism. Figs. 4 and 5 are detail views of modifications.

A is the arm, and A' is the bed, of a sewing-machine. B is the main shaft. B' is a disk. C is a driving-pulley. D D' are eccentrics fixed to the shaft B. E is a pitman. F is a connecting-lever. F' is a stud. G G' is a pitman-lever. H is a shuttle-lever. H' is a stud. I is a feed-shaft. I' is a crank. g is a link. h is a shuttle. J J' are cams. K is a stitch-regulating lever. K' is a slot in the stitch-regulating lever. K² is a crank-pin. K³ is the feed-bar. K⁴ is a bent portion of the lever K. L is a milled-headed thumb-nut, having a shaft ending in the crank-pin K². n is a stud on which lever K is pivoted. n' is a bracket extending from the feed-bar, and to which the lever K is pivoted. M is a needle-bar. N is the presser-foot. O is a friction-plate and retainer for the milled-headed thumb-screw. P is a feed-spring. The friction-spring and retainer O is forked and passes into a groove in the shaft of the milled-headed thumb-nut L, and is held down against it by the screw b. This piece serves to keep the nut L in position, as well as to apply a friction to it to keep it from moving while the machine is in motion, but is light enough to permit the milled head to be moved by the finger when desired. The take-up c is of ordinary construction. The tension a is the well-known wheel-tension.

The manner of operating the feed-bar may

by any other well-known form of cam; as well as the one shown herein.

Motion being given to the main shaft B, the needle-bar M, carrying the needle at its lower end, secures the requisite motion from the crank-disk B' in the usual way. The eccentric D' is connected by the rod E to the short arm of the connecting bell-crank lever F, the long arm of which is connected to the shuttle-lever H by a ball-and-slot joint. The eccentric D is connected with the feed-shaft I by the pitman-lever G G', radius-bar G', link g, and crank I'. A cam, J J', fixed to the shaft I, connects with the feed-bar K³ to lift it, and with the regulating-lever K pivoted to it at n, and, in connection with the spring P, gives the requisite forward and back motions to the feed-bar, the presser-foot N holding the material against the feed. The combined movements of the above-enumerated parts from a single rotation of the main shaft produce a single stitch. The length of stitch is regulated by turning the milled thumb-nut L, which has a crank, K², extending from its shaft and entering a slot in the stitch-regulating lever K. This crank moves the extreme end K⁴ of lever K along the conical portion J of the cam J J'. The lever K has a portion, K⁴, bent at nearly a right angle, and is held against the cam by the feed-spring P for giving the feed-bar its forward motion, the length of stitch being equal to the throw of the cam at the point which is in contact with the bent part K⁴ of the lever K. The feed is raised by the portion J' of the cam J J' immediately under the feed-bar K³. The eccentrics D D' are in opposite positions on the shaft to counteract vibration; but it is manifest that they may be in the same direction. A single eccentric with a face broad enough to receive both the straps of the rods E and G would give the requisite motions, or a single crank on a bent shaft carrying both connections would answer the purpose of the two eccentrics, as shown in Figs. 4 and 5.

The lever F and radius-bar G' are mounted on a common stud, F'; but separate studs may be used, and for the radius-bar G' may be substituted the well-known slot and pin.

The advantage of the shuttle and feed operating mechanism herein shown is that, being limited to their separate functions of shuttle

and feed operating, the parts may be made lighter and run at a higher rate of speed, while each mechanism unites with all the others to produce a unit of result—the production of one
5 stitch.

By placing the eccentrics opposite each other the vibration is neutralized, and when made from a single piece, as shown in Fig. 1, but one boring and fastening is necessary to fix them
10 to the shaft.

The stitch-regulating mechanism is simple, durable, and convenient for manipulation.

Having thus described my invention, I claim—

15 1. In a sewing-machine, the combination of the shaft B and eccentrics D D' thereon with the shuttle-driving mechanism E, F, and H

and feed-operating mechanism G G' g I I', substantially as set forth.

2. The combination of the eccentrics D D', 20 pitman E, levers F and G, stud F', and radius-bar G', said lever F and radius-bar G' being mounted on said stud F', substantially as described.

3. The conical cam J, fixed to the feed-shaft 25 I, in combination with the feed-bar K³, stitch-regulating lever K, having the slot K' and bent portion K⁴, the crank-pin K², and spring P, substantially as set forth.

THOS. A. MACAULAY.

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