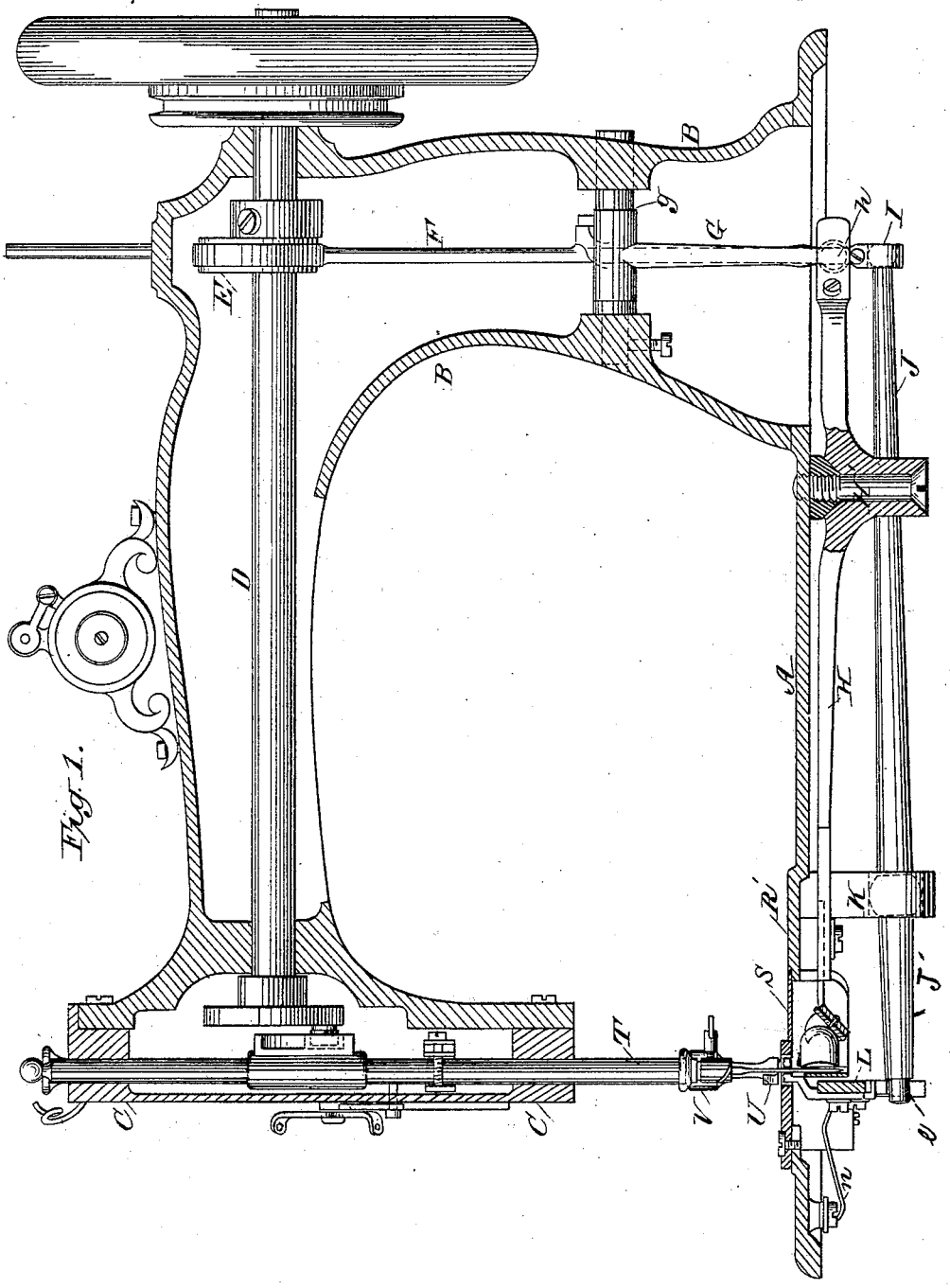
(No Model.) 4 Sheets—Sheet 1.

T. A. MACAULAY.

SEWING MACHINE.

No. 265,685. Patented Oct. 10, 1882.



WITNESSES:

W. A. Jones

J. S. Brown.

INVENTOR

Thos. A. Macaulay

BY

ATTORNEY

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T. A. MACAULAY.

SEWING MACHINE.

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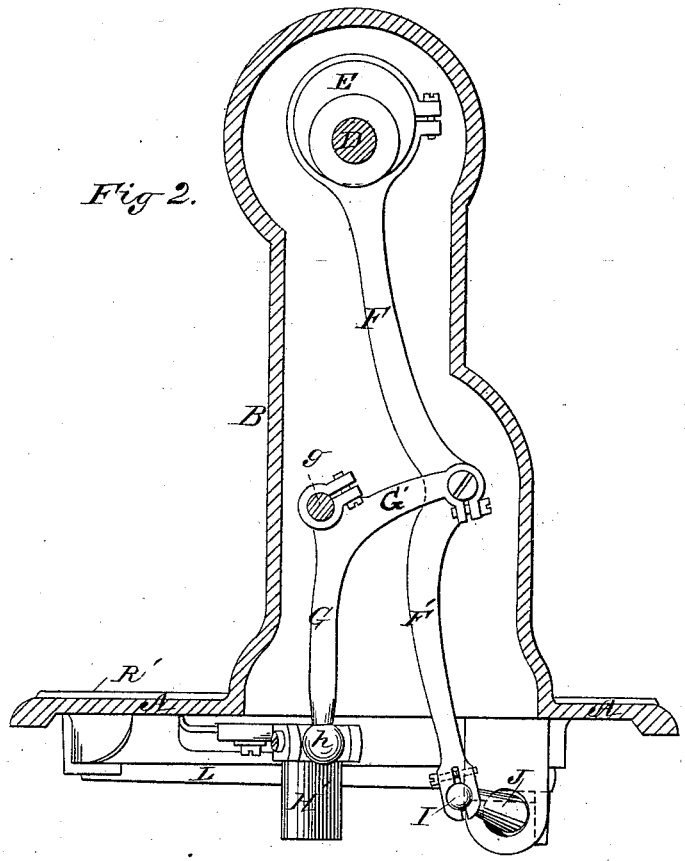
Fig 2.



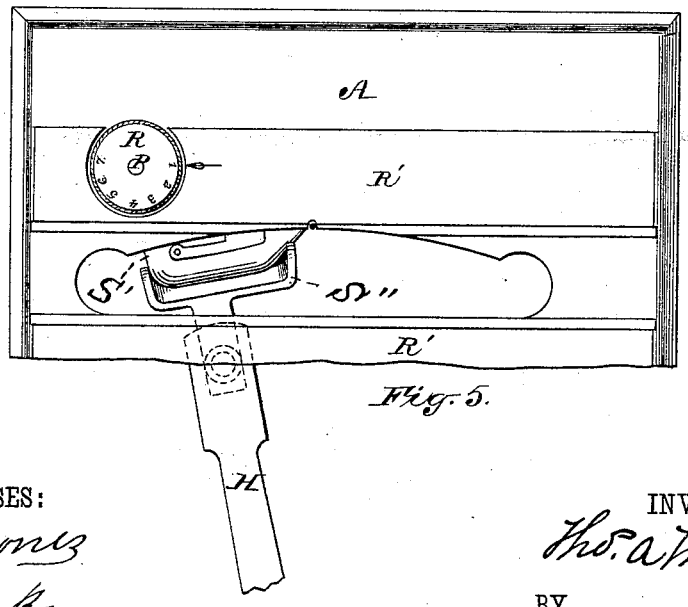


Fig. 5.

WITNESSES:

W. A. Jones

J. S. Brown.

INVENTOR

Thos. A. Macaulay

BY

ATTORNEY

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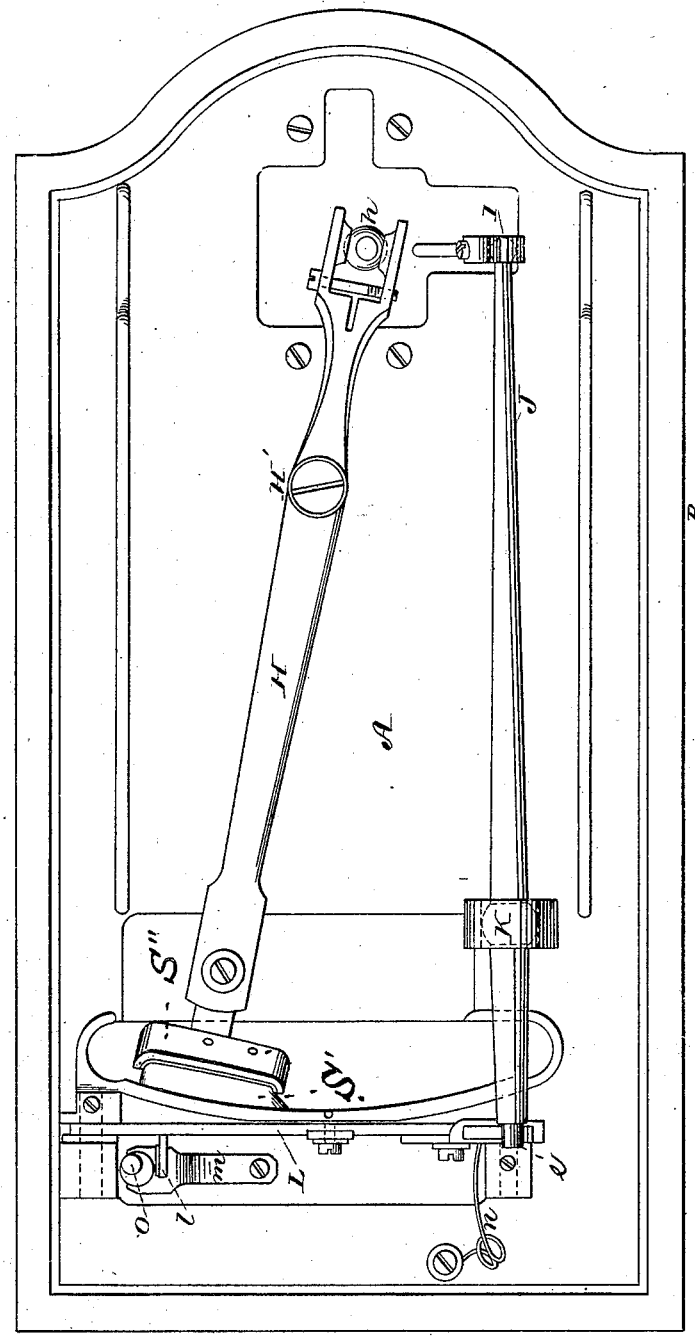

Fig. 3.

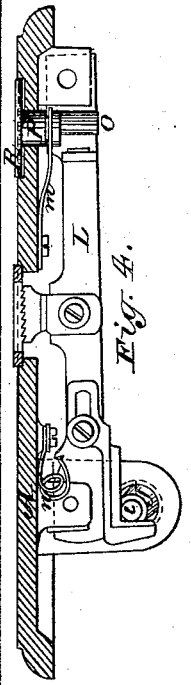

Fig. 4.

WITNESSES:

W. A. Jones

J. S. Brown.

INVENTOR

Thos. A. Macaulay

BY

ATTORNEY

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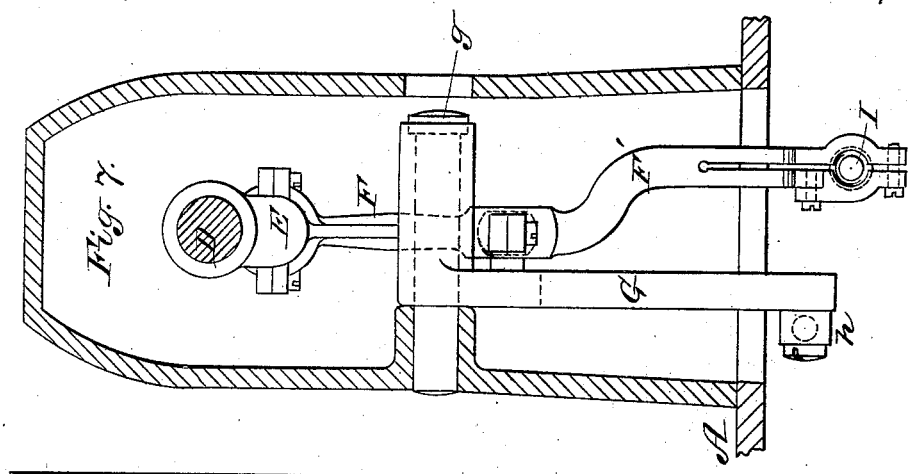

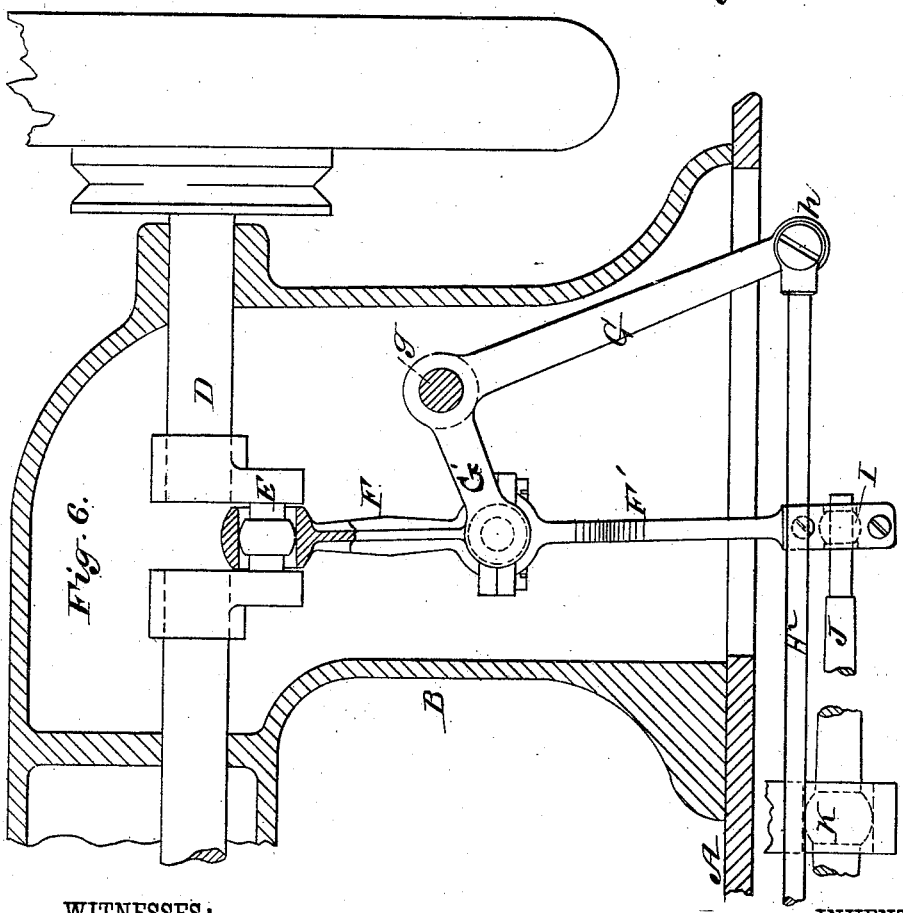

WITNESSES:

W. A. Jones.

J. S. Brown

INVENTOR

Thos. A. Macaulay

BY

ATTORNEY

UNITED STATES PATENT OFFICE.

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

SEWING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 265,685, dated October 10, 1882.

Application filed October 22, 1881. (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 certain new and useful Improvements in Sewing-Machines, of which the following, with the accompanying drawings, is a specification.

The object of my invention is to provide a simple, durable, and efficient feed and shuttle operating mechanism and means for changing the length of stitch, hereinafter more fully described.

In the drawings, Figure 1 is a sectional side elevation. Fig. 2 is a sectional end view of the rear portion of Fig. 1. Fig. 3 is a bottom view of Fig. 1. Fig. 4 is a sectional end view of the feed mechanism. Fig. 5 is a view of a portion of the bed. Fig. 6 is a sectional side elevation of a modification of Fig. 1. Fig. 7 is an end view of Fig. 6.

A is the bed-plate. B is the arm. C is the face-plate. D is the main driving-shaft. E is an eccentric. F F′ is a pitman-lever. G G′ is a bell-crank lever. *g* is a stud. *h* is a ball-and-slot joint. I is a ball-joint. H is shuttle-carrying lever. H′ is a stud. J J′ is a vibratory feed-lever. K is a universal joint. L is a feed-bar. *l* is a stop-bracket. *m* is a friction-spring. *o* is an eccentric. P is a shaft. R is a milled dial-plate. R′ is a raised part of the bed-plate. S is the shuttle-slide. T is the needle-bar. U is the presser-foot. V is the presser-bar. S′ is the shuttle. S″ is the shuttle-carrier. *e* is end of feed-bar.

Motion being imparted to the main driving-shaft D, the eccentric E, being fixed to the shaft, imparts a vertical and vibratory motion to the pitman-lever F F′ and an oscillating motion to the bell-crank lever G G′, which, being connected to the shuttle-lever H by the ball-joint *h*, rocks it and moves the shuttle the requisite distance. The oscillating vibratory lever J J′, being connected with the lower end of the pitman-lever F F′ at J, and, having a universal or ball joint in the bearing K, has imparted to it an up-and-down forward-and-back motion, which it imparts to the feed-bar L by its shorter arm J′. The lower end of the pitman-lever F′ has an extent of motion corresponding to the throw of the eccentric E, sufficient to throw the shuttle the requisite distance, but too great for operating the feed-bar, and therefore the length of arms of the lever J J′ is proportioned from the fulcrum or bearing K, so as to reduce the motion to the requisite distance. To operate the feed, the feed-bar L rests on the end *e* of the lever J J′ by the force of the spring *n*, and receives its upward and forward motions from the lever J J′ and its downward and back motions from the spring *n*. The feed-bar projection *l*, coming in contact with the eccentric *o*, determines the length of stitch. The bed-plate A has a raised part, R′, at the left-hand side of the shuttle-slide S. This raised part is countersunk and bored to receive the shaft P and the milled dial-plate R. The center of the countersink is so placed that a part of the milled dial-plate projects beyond the edge of the raised part R (see Fig. 5) sufficient to permit the finger to be applied to turn it to any desired position. The friction-spring *m* is forked at one end and fits into a groove in the shaft P, to hold the dial-plate in the countersink, its other end being secured to the bed-plate by a screw. The shaft P has an eccentric, *o*, and is rigidly secured to the dial-plate and turns with it. When the eccentric *o* is brought to or from the stop-bracket *l* the length of stitch is thereby changed. Instead of changing the length of stitch in the manner above described, a lever may be pivoted to the feed-bar and adjustably connected with the feed-lever J between the feed-bar and the journal K.

The shuttle in the machine herein described is operated backward from the operator while taking the loop of needle-thread. This is owing to the fact that all the movements of the feed and shuttle mechanism are taken from the same eccentric on the main shaft. The movement of the shuttle in a forward direction when taking the loop of needle-thread is when the pitman-lever is in its upward movement, and carries the feed-lever down from the feed-bar by reason of its being journaled at K, instead of upward to raise the feed.

If the position of the parts in Fig. 2 were reversed, so that the pitman-lever and feed-lever were in front of the bell-crank instead of back of it, as it is, the shuttle could be moved forward instead of backward in taking the loop of needle-thread.

Fig. 6 shows the bell-crank at right angles to the shaft and connected to the shuttle-carrier by a rod, H^2, the pitman-lever being at its lowest position when the shuttle has passed through the loop. A backward movement of the shuttle is not necessary in this case.

I have shown two forms of shuttle-operating mechanism; but my invention may be embodied in other well-known forms of shuttle mechanism, such as rock-shafts.

The advantages of the combination of mechanisms above described for shuttle and feed operating are that a common eccentric gives motion to both the shuttle and feed operating levers, complication of the working parts is avoided, and thus are insured economy of construction, ease of operation, less lubrication, and greater durability in this class of sewing-machines.

Having described my invention, I claim—

The combination of the main shaft D, the eccentric E, bell-crank lever G G′, and shuttle-lever H with the pitman-lever F F′, feed-lever J J′, all operated by the said eccentric E, and feed-bar L, substantially as set forth.

The foregoing specification signed by me this 22d day of October, 1881.

THOS. A. MACAULAY.

Witnesses:
J. S. BROWN,
W. R. JONES.