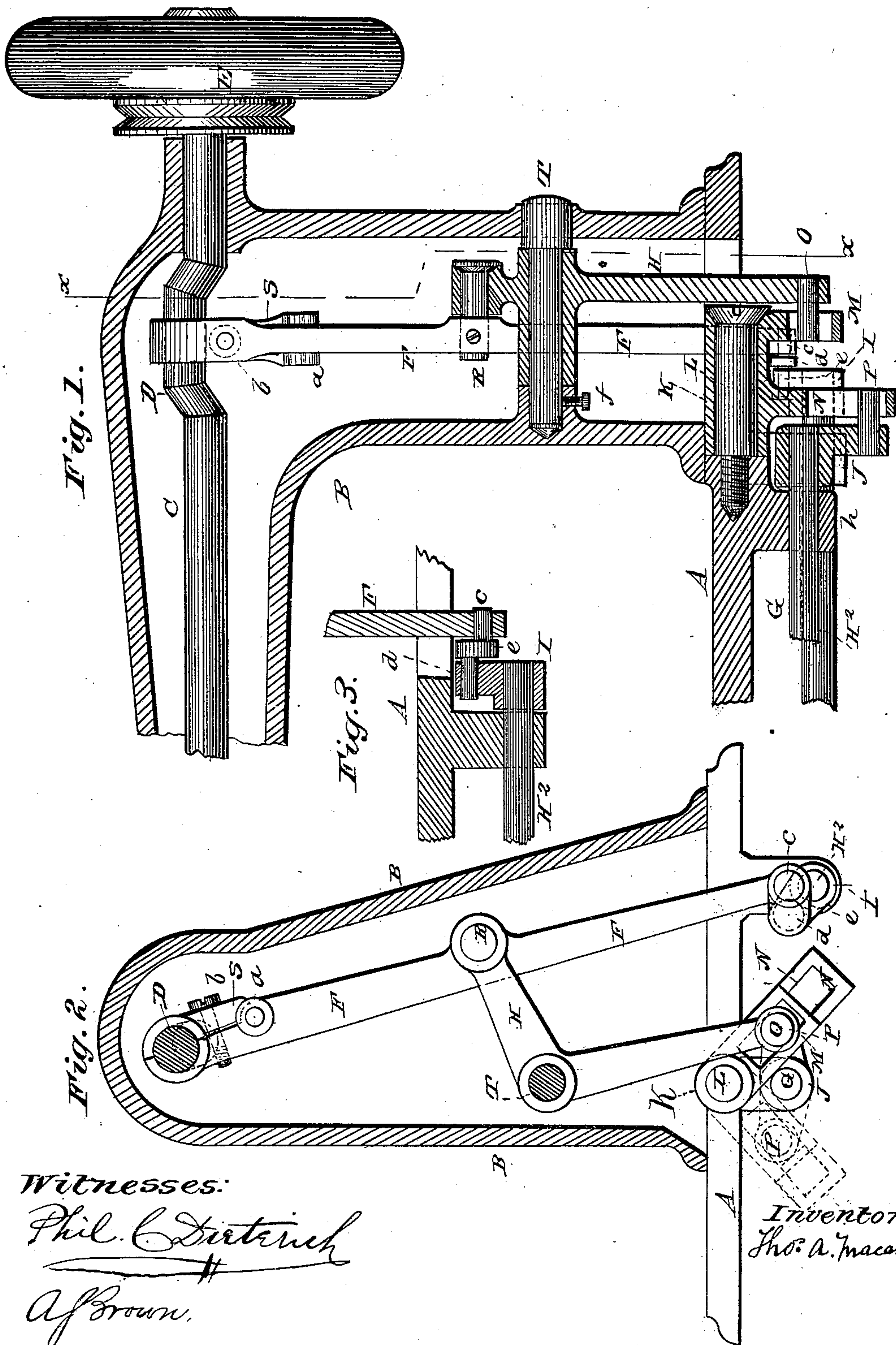


(No Model.)

T. A. MACAULAY.
SEWING MACHINE.

No. 272,844.

Patented Feb. 20, 1883.



Witnesses:

Phil. C. Dietrich
A. Brown.

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. 272,844, dated February 20, 1883.

Application filed September 11, 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 certain new and useful Improvements in Mechanical Movements for Sewing-Machines, of which the following, with the accompanying drawings, is a specification, which will enable others skilled in the art to make and use the same.

10 Similar letters refer to like parts.

My invention relates to that class of mechanical movements in which it is desirable to obtain a comparatively great axial motion—ninety degrees, more or less—in a rock-shaft for operating what is known as “oscillating shuttles,” and to actuate a feed-operating mechanism from a main rotating needle-driving shaft, as will hereinafter be more fully described.

20 In the drawings, Figure 1 is a vertical section of the rear part of a sewing-machine. Fig. 2 is an end view of the same. Fig. 3 is a detail view of the feed-shaft H^2 and its connections, partly shown in dotted line in Fig. 1.

25 A is the rear part of the bed of a sewing-machine. B is the rear portion of the hollow arm. C is the main needle-driving shaft. D is a crank on the main driving-shaft. E is a driving-wheel. FF is a pitman-lever. G is a rock-shaft. H is a bell-crank lever. H^2 is a feed-shaft. I is a crank fixed to the feed-shaft. J is a crank fixed to the rock-shaft. K is an intermediate lever or rock-shaft, having slotted arms M and N. O is a pin connecting the bell-crank lever with the short slotted arm of the intermediate rocking lever K. P is a pin connecting the crank-arm J with the long slotted arm N of the intermediate rocking shaft or lever K. R is a stud connecting the pitman-lever with the bell-crank lever H. S is a hinged cap for connecting the pitman F with the crank D. T is a stud connecting the bell-crank lever with the hollow-arm B. *a* is a pin connecting the hinged cap S to the pitman-lever FF. *b* is a screw connecting the pitman-lever and cap S to the crank D. *c* is a pin connecting the link *e* to the lower end of the pitman-lever. *d* is a pin connecting the link *e* to the crank I.

50 The shaft C being rotated, the pitman-lever FF, being connected to the short arm of the bell-crank lever H by the pin R, receives a vertical and lateral motion from the crank D, and

imparts an oscillating motion to the bell-crank lever H and a rotating motion to the shaft H^2 . Through the link *e* and crank I, which connects the pitman-lever FF with the feed-shaft H^2 , the bell-crank lever H being connected with the short slotted arm of the intermediate rocking shaft or lever K by the pin O entering the slot in the short arm M of the intermediate rocker, K, and the pin P of the crank J entering the slot of the long arm N of the rocker K, and the shaft G being rigidly connected to the crank-arm J, the oscillating motion of the bell-crank lever is transmitted to the shaft G through the intermediate rocker, K, and crank J.

It will be perceived that the throw of the crank D is a comparatively small throw, being in a full-sized machine not necessarily more than three-eighths of an inch. The pitman-lever FF being connected to the short arm of the bell-crank lever H, and its long arm being connected to short arm M of the intermediate rocking arm, K, and the long arm N of the intermediate rocking arm, K, being connected to a shorter arm, J, fixed to the rocking shaft G, there is, therefore, a constant increase of motion, by reason of the comparative lengths of the several arms to each other, imparted to the shaft G.

Another cause of increased axial motion in the shaft G is the nearness of the centers of motion of the rocker K and the shaft G.

The advantages of this device are, that the proportions of the several arms can be changed to modify the extent of motion without changing the throw of the crank D, and that an easy-working proportion of the levers may be preserved, and, if good construction or other reasons requires it, the throw of the crank D may also be changed.

It will be readily understood that as the pitman-lever FF gives motion to the bell-crank lever H, any other form of lever operated by a pitman-lever will answer the purpose as well as a bell-crank form, whether the lever so operated acts as a fulcrum for the pitman-lever or not, as in Pratt's patent, No. 226,550, dated April 13, 1880, and as in Schlueter's patent, No. 218,141, dated August 5, 1879, and as in Schlueter's patent, No. 243,729, dated July 5, 1881; or a lever connected with the main crank-shaft, operated independently of the pitman-lever,

may be substituted for the bell-crank lever, as in Goodell's patent, No. 214,903, dated April 29, 1879, or as in Porter and White's patent, No. 250,169, dated November 29, 1881, and as in Porter's patent, No. 248,214, dated October 11, 1881. Any equivalent of the feed-shaft may be substituted therefor, and be operated by the pitman-lever. I do not, therefore, limit my claims to the particular manner of giving motion to the primary or secondary levers or to the pitman-lever, as motion may be imparted to these devices in various ways, and other changes and variations may be made without departing from my invention.

Having described my invention, I claim—

1. The combination of the main needle-driving shaft C, having crank D, with the pitman F, levers H and K, and rock-shaft G, substantially as set forth.

2. The combination of the main needle-driving shaft C, having crank D, pitman-lever F F, feed-shaft H², levers H and K, and rock-shaft G, substantially as set forth.

3. In combination, a main rotary needle-driving crank-shaft, a pitman-lever, and feed-shaft, and primary and secondary levers operating a rock-shaft, substantially as set forth.

4. In combination, the upright hollow arm, a main rotary needle-driving crank-shaft, a

pitman-lever, and feed-shaft, and primary and secondary levers operating a rock-shaft, substantially as set forth.

5. In combination, a main rotary needle-driving crank-shaft, a primary lever suitably connected with and operated by said crank-shaft, a secondary lever operated by said primary lever, and a rock-shaft operated by said secondary lever, for the purpose herein set forth.

6. In combination, a main rotary needle-driving crank-shaft, a primary lever suitably connected with and operated by said crank-shaft, a secondary lever operated by said primary lever, and a rock-shaft operated by said secondary lever, with a pitman-lever and feed-shaft operated by said pitman, substantially as set forth.

7. The combination of a main rotary needle-driving crank-shaft, a primary lever suitably connected with and operated by said crank-shaft, and a secondary lever operated by said primary lever, with a pitman-lever operating a feed-shaft, substantially as set forth.

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Witnesses:

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