(No Model.)

J. TRIPP.

MECHANICAL MOVEMENT.

No. 304,977. Patented Sept. 9, 1884.

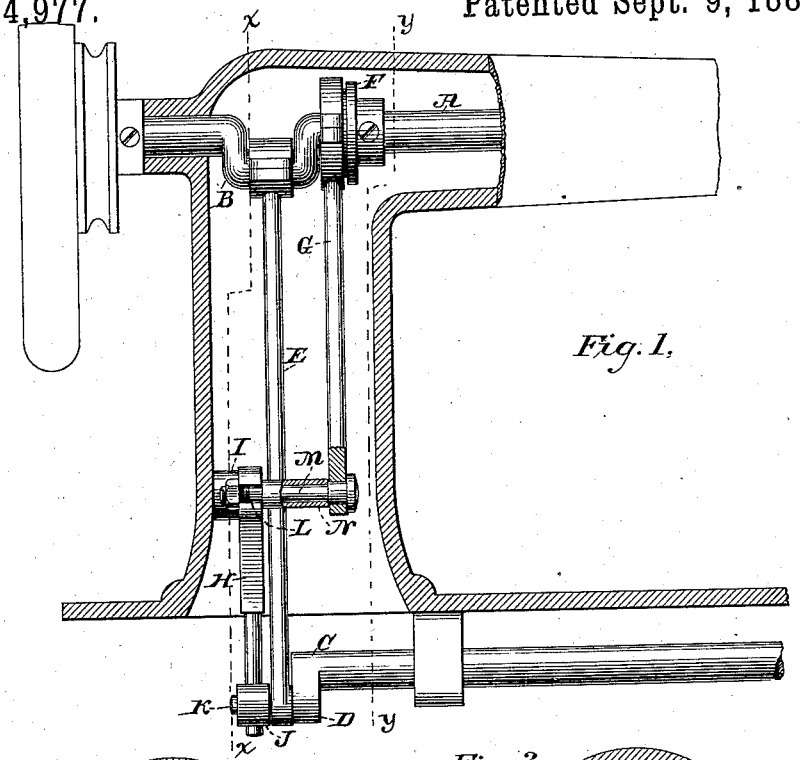


Fig. 1.

Fig. 2.

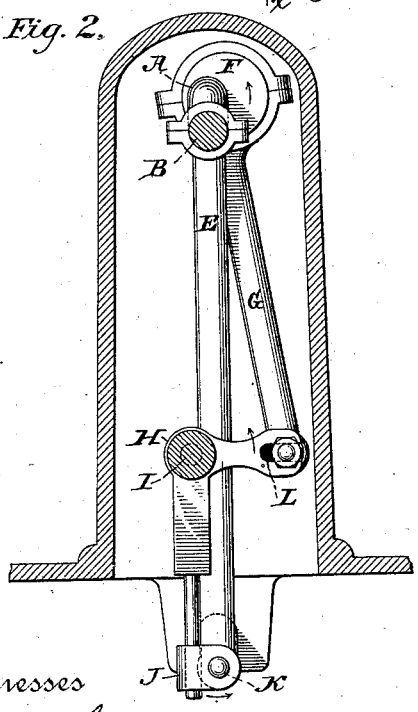
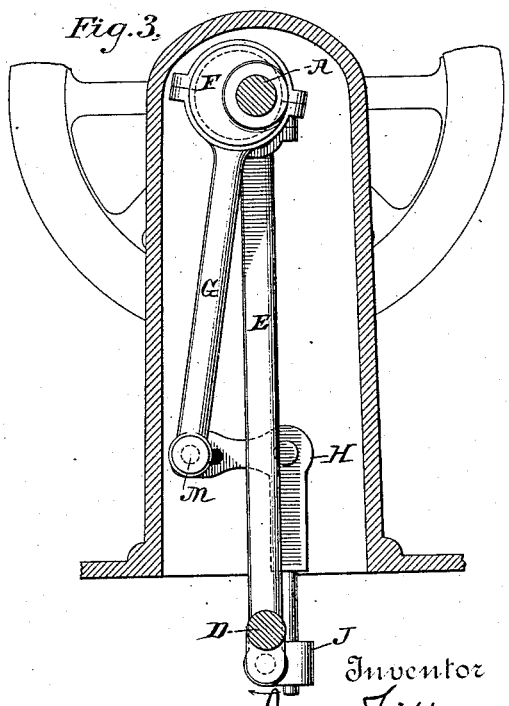


Fig. 3.



Witnesses

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UNITED STATES PATENT OFFICE.

JAMES TRIPP, OF NEW YORK, N. Y.

MECHANICAL MOVEMENT.

SPECIFICATION forming part of Letters Patent No. 304,977, dated September 9, 1884.

Application filed June 25, 1884. (No model.)

To all whom it may concern:

Be it known that I, JAMES TRIPP, of the city, county, and State of New York, have invented certain new and useful Improvements in Mechanical Movements; and I hereby declare that the following is a full, clear, and exact description thereof, which will enable those skilled in the art to make and use the same.

The invention relates to that class of mechanical movements designed to transmit rotary motion from one shaft to another. It relates particularly to movements by which such motion is transmitted from one shaft to the other through the medium of cranks on the shafts and a rod connecting the cranks; and it consists, essentially, in improved means for causing the driven shaft to pass the points where dead-centers would occur if the cranks and connecting-rod alone were used. This improved movement is of course applicable wherever it is desired to transmit isochronous circular motion from one shaft to another; but I have shown it in the drawings accompanying this description as applied to the upper and lower shafts of a sewing-machine, where it is particularly applicable.

Figure 1 of the drawings is a section of a sewing-machine table and its needle-bar arm, exposing the upper or main shaft and the lower or shuttle shaft. Fig. 2 is a section on plane *x x*, looking toward the needle-bar arm, and Fig. 3 is a section on plane *y y*, looking from the needle-bar arm.

The letter A indicates the main or driving shaft, and B is its crank. C indicates the driven shaft, and D its crank, and E is the connecting-rod pivoted to the cranks, and serving to transmit the motion of the upper shaft to the lower shaft. F is an eccentric on the main shaft. It carries one end of the eccentric-rod G, the other end of which is pivoted to the shorter arm of the angle or bell-crank lever H. This lever is pivoted to the upright standard at I, and its longer arm passes freely through the sleeve J, in which revolves the crank-pin K of the lower shaft. The shorter arm of the angle-lever is provided with a slot, L, along which the pin M, that connects the eccentric-rod to this arm, may be moved for the purpose of regulating the extent of the vibration of the longer arm of the lever to correspond with the motion of the crank-pin of the lower shaft. The arms of the angle-lever are preferably arranged to form a right-angle lever, and accordingly the fulcrum-point of the lever is in or nearly in the same line with the centers of the two shafts, and the highest point of the driving-shaft eccentric is separated from the crank-arm on the same shaft by substantially one-quarter of a circle. By this arrangement of parts the points at which the longer arm of the angle-levers comes to a rest is where the rod connecting the cranks acts most certainly to transmit the motion of the driving-shaft to the driven shaft, and the points where the connecting-rod has the least effective control of the driven crank or the dead-center points, is where this arm of the lever acts most positively. The result is that when the movement is in motion the longer arm of the lever applies its power to the driven crank with the fullest effect from just before and past the places where dead-centers would occur were the cranks and connecting-rod alone used, thus preventing the driven crank stopping on such centers and causing the driven shaft to move isochronously with the driving-shaft.

The pin M passes through a sleeve, N, which abuts against a shoulder, O, on the pin, thus permitting the pin to be tightly screwed to the angle-lever without binding the eccentric-rod, which rod moves freely on the shouldered part of the pin. Of course any other means of adjusting these parts may be employed, and I do not therefore confine myself to any particular means.

What is claimed as new is—

1. In a mechanical movement for transmitting circular motion, the combination of a driving and a driven crank-shaft connected by a rod pivoted to their cranks, and an eccentric-rod operated by the driving-shaft and acting through the medium of a lever upon the driven shaft to cause it to pass its dead-centers.

2. In a mechanical movement for transmitting circular motion, the combination of a driving and a driven crank-shaft connected by a rod pivoted to their cranks, and an angle-le-

ver operated by the driving-shaft and acting upon the driven shaft to cause it to pass its dead-centers.

3. In a mechanical movement for transmitting circular motion, the combination of a driving and a driven crank-shaft connected by a rod pivoted to their cranks, an eccentric-rod operated by the driving-shaft, and an angle-lever operated by said eccentric-rod and acting to cause the driven shaft to pass its dead-centers.

4. In a mechanical movement for transmitting circular motion, the combination of a driving and a driven crank-shaft connected by a rod pivoted to their cranks, an eccentric-rod operated by the driving-shaft, and an angle-lever operated by and adjustably connected to said eccentric-rod and acting to cause the driven shaft to pass its dead-centers.

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Witnesses:
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