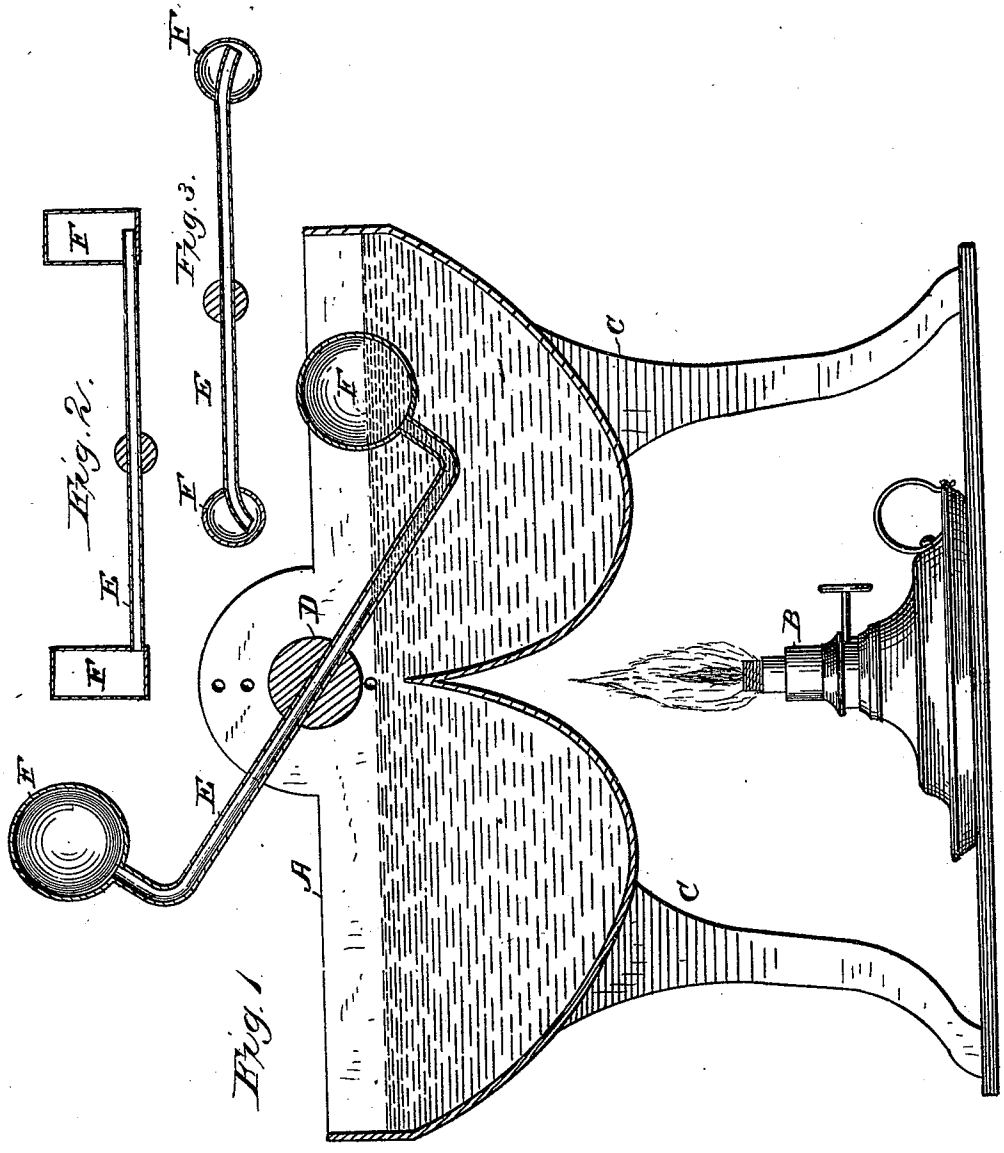
(Model.)

I. L. LANDIS.

OSCILLATING MOTOR.

No. 250,821. Patented Dec. 13, 1881.



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UNITED STATES PATENT OFFICE.

ISRAEL L. LANDIS, OF LANCASTER, PENNSYLVANIA.

OSCILLATING MOTOR.

SPECIFICATION forming part of Letters Patent No. 250,821, dated December 13, 1881.

Application filed July 22, 1881. (Model.)

To all whom it may concern:

Be it known that I, ISRAEL L. LANDIS, of Lancaster City, in the county of Lancaster, and in the State of Pennsylvania, have invented certain new and useful Improvements in Motors; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, making a part of this specification.

This invention relates to certain improvements in oscillating motors, and it has for its object to provide certain means whereby the expansion and volatilization of a suitable liquid may be employed to change the position of such liquid in a suitable apparatus, so as to throw the weight alternately on opposite sides of a pivot or fulcrum, and thus cause the device to oscillate in such manner as to impart motion to any apparatus or mechanism, as more fully hereinafter specified. These objects I accomplish by the apparatus and devices illustrated in the accompanying drawings, in which—

Figure 1 represents a longitudinal vertical section of my improved motor complete, and Figs. 2 and 3 sectional views of modifications of the oscillating lever, by means of which motion is imparted to the mechanism or machinery.

In the drawings the letter A indicates a suitable tank or vessel for containing water or other liquid. The said tank may be raised at the center on its bottom, as shown, to concentrate the heat of the flame of the lamp B below, or it may be made flat, as may be found most convenient. The said vessel is mounted upon legs or other supports, C, by means of which it may be properly elevated above the flame.

The letter D indicates a rock-shaft, journaled in suitable bearings in the sides of the vessel A. The said rock-shaft carries a hollow tube or lever, E, which passes transversely through it, and which is provided with bulbs or chambers F at its opposite extremities, which communicate with each other through said hollow lever or tube. As shown in Fig. 1, the bulbs are secured to right-angular branches, which enter at the bottoms of the said bulbs or chambers, but, as indicated in Fig. 2, the bulbs or chambers may be either rectangular or spherical, and the tube or lever may connect with one side or extend into the chamber, terminating near the opposite side, or it may enter and be turned downward to a greater or less extent, in such manner that when the chamber is depressed the end of the tube or lever will extend close to the bottom, so as to carry off all the liquid with which it is charged and convey it to the opposite chamber or bulb. The said chambers or bulbs are charged with volatile liquid—such as alcohol, ether, or the like—in such quantity that one of the bulbs, as well as the connecting tube or lever, may be entirely emptied into the other, and the vessel A is charged with hot water, the heat of which is maintained by means of the lamp below. After filling the air is exhausted from the bulbs or chambers, and the same are hermetically sealed.

The operation of my invention is as follows: The bulb containing the greater part of the liquid overbalances the other and rests in the water in the vessel A. Under the influence of heat the liquid in the said bulb will be vaporized partially, and the remaining liquid forced through the lever or tube into the opposite bulb. This will of course cause said bulb to overbalance the first mentioned and drop into the water in the tank, and the operation will thus continue alternately in the bulbs, establishing a continuous oscillation of the lever.

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

1. In combination with the bulbs secured to the levers, the projecting ends of said levers curved inwardly into said bulbs, at such an angle as that their ends will be immediately above the liquid in the immersed bulbs, substantially as and for the purposes specified.

2. In combination with the oscillating lever and bulbs or chambers, the tank for containing water or other liquid, having a raised central portion to concentrate the heat from the flame of a lamp below, substantially as and for the purposes specified.

3. In an oscillating motor, a tank for containing the heating-fluid, provided with a dividing wall or partition, substantially as shown, and for the purpose set forth.

In testimony whereof I affix my signature, in presence of two witnesses, this 15th day of July, 1881.

ISRAEL L. LANDIS.

Witnesses:

JOSEPH SAMSON,

GEORGE LENTZ.