

G. E. Clay,
Motor.

N^o 20,624.

Patented June 22, 1858.

Fig: 2.

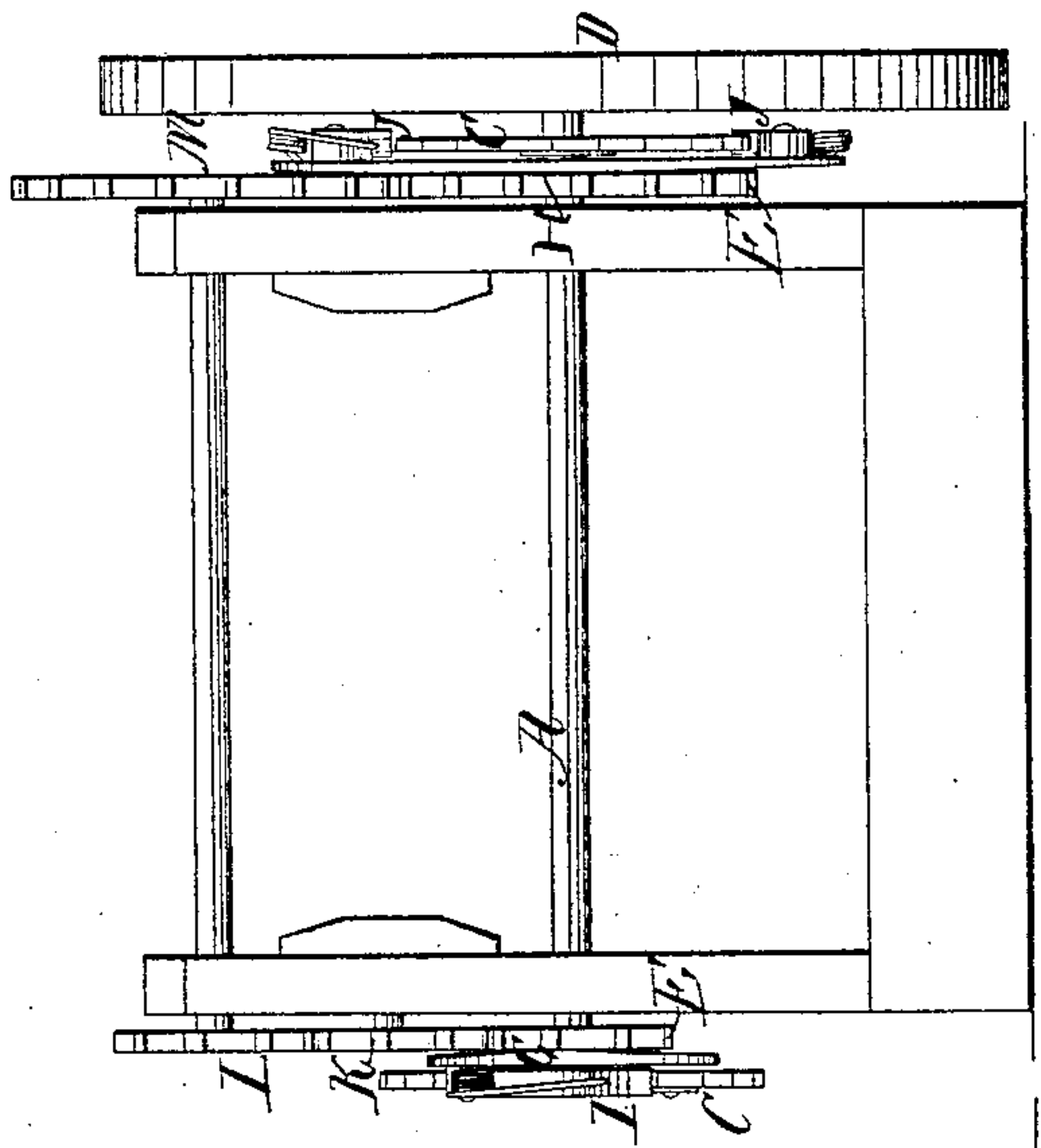
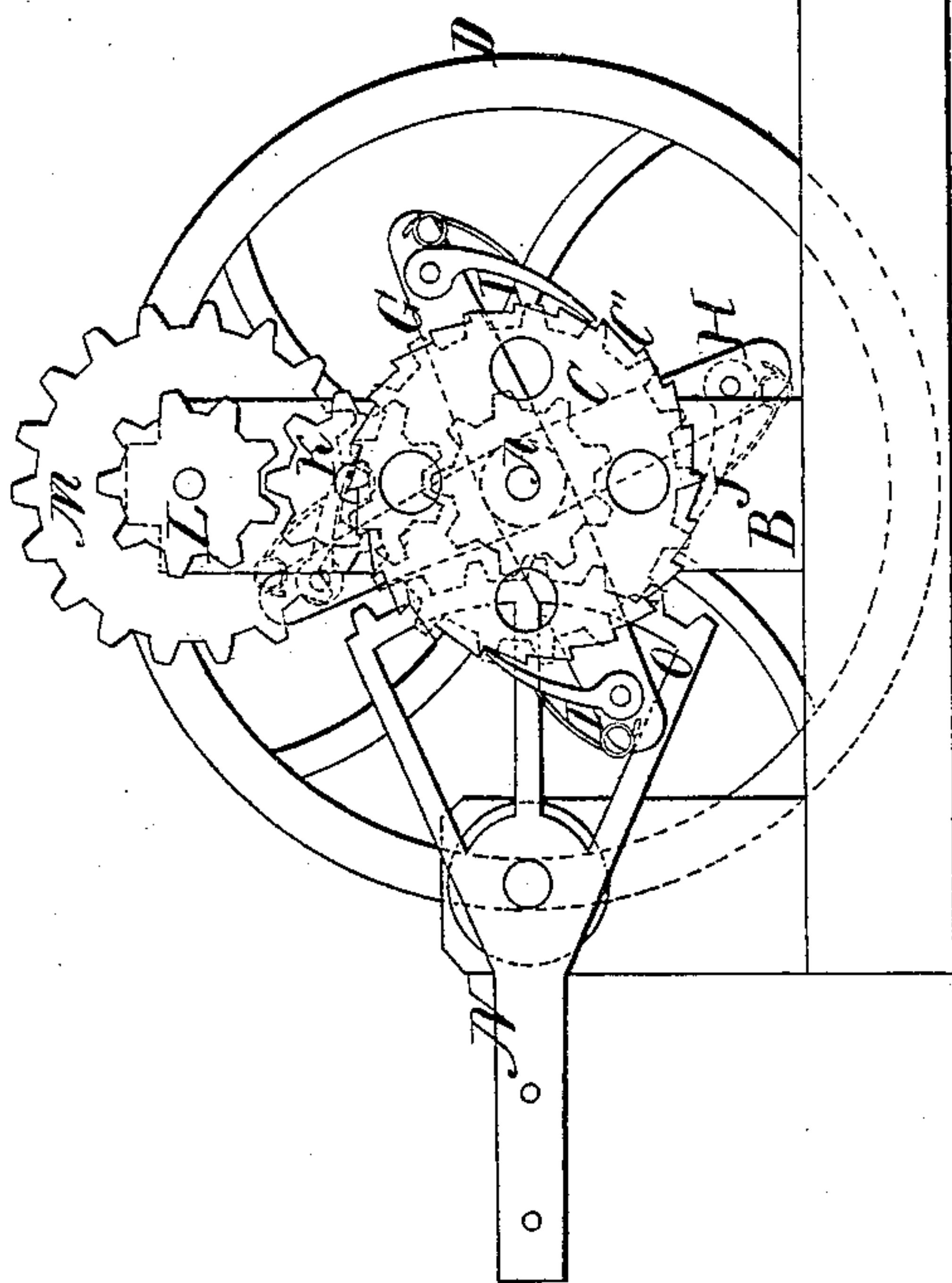


Fig: 1



UNITED STATES PATENT OFFICE.

GEORGE E. CLAY, OF STILLWATER, MINNESOTA.

IMPROVEMENT IN THE MODE OF APPLYING LEVER-POWER.

Specification forming part of Letters Patent No. 20,624, dated June 22, 1858.

To all whom it may concern:

Be it known that I, GEORGE E. CLAY, of Stillwater, in the county of Washington and State of Minnesota, have invented a new and useful Improvement in Lever-Powers, by which a rotary motion is transmitted from an oscillating or vibratory motion of a lever; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the annexed drawings, making part of this specification.

Figure 1 is a side elevation of the improved lever-power. Fig. 2 is a front elevation of the same.

Similar letters refer to corresponding parts.

The nature of this invention and improvement consists in so gearing the vibrating or oscillating arms, to which the ratchet-pawls are attached, together by a series of cog-wheels to enable a continuous rotary motion to be transmitted to a shaft by the vibratory or oscillating movement of a lever, on which the propelling-power is first exerted.

To enable others skilled in the art to make and use my invention, I will proceed to describe its construction and operation.

The main horizontal shaft A turns in suitable boxes fixed in two uprights B of the frame and is provided with ratchet-wheels C C', fixed permanently at each end, and a balance or fly wheel D, from which the power can be conveyed by a band to any point desired. Inside these ratchet-wheels are arranged cog-wheels E F, turning loosely on the main horizontal shaft, one of them E being of the pinion size, smaller than the other F, and both being secured to bars G H, which oscillate with said wheels and extend radially from their centers to points beyond the notched peripheries of the ratchet-wheels. These arms E F have spring-pawls I J attached to their extremities by pins, upon which they move in such a manner as to enable said pawls to engage with the ratchets on the wheels C when moving in one direction of their oscillation, and to thus turn them and the shaft A, and to slip over the same when moved in the opposite direction. The smaller cog-wheel or pinion E meshes in gear with a corresponding pinion K immediately above it, turning loosely on a stud or shaft fixed in the upright c, which pinion K meshes in gear with a corresponding pinion L above secured

on the end of a horizontal shaft turning in suitable boxes in the uprights, and having a cog-wheel M secured on its opposite end, which meshes in gear with the cog-wheel F, with which it corresponds in size.

The lever N, to which the actuating power is applied, is suspended on a stud or bolt situated on the same plane as the center of the horizontal shaft A, and its handle may extend to any desired distance beyond the stud, bolt, or fulcrum to correspond with the power desired to be obtained. Its inner end is made in the form of a segment of a circle scribed from the fulcrum on which it moves, and the periphery of this segment of a wheel O is cogged and made to mesh in gear with the pinion E, to which the oscillating arm or bar G is secured. Instead of arranging this lever N in the position represented, it may be placed immediately below the center of the horizontal shaft A and provided with a weight at its lower end, so as to enable it to be oscillated after the manner of a clock-pendulum.

The operation is as follows: When the outer end of the lever N is depressed, the pinion E is turned by the rising of the opposite cogged segmental end O of the said lever, with which it is geared, and with it the arm or bar G, which carries with it the ratchet-wheel C, with which it engages through the agency of the spring-pawls. The other cog-wheel F and arm or bar H, secured to the same, is at the same time revolved loosely over the horizontal shaft A, and its pawls are made to slip over the ratchets of the wheel C' until it reaches the termination of its oscillation, when the outer end of the lever N is raised and the pinion E and arm or bar G oscillated in a reverse direction, causing the pawls to slip loosely over the notches of the ratchet-wheel C and the corresponding reverse oscillating motion to be given to the cog-wheel F and arm or bar H attached through the agency of the pinions K L and cog-wheel M, and the spring-pawls to operate on the ratchet-wheel C', and by giving motion to the same continue the motion previously given to the horizontal shaft A by the pawls and ratchet at its opposite end, and in this manner a continuous rotary motion is kept up by the vibratory or oscillating movement of the lever N and the alternate corresponding movements of the spring ratchet arms or bars.

I am aware that oscillating spring-pawl arms or bars and ratchet-wheels have heretofore been employed for giving a continuous motion to shafts, and I do not, therefore, lay claim to these parts; but

What I do claim as my invention, and desire to secure by Letters Patent, is—

The combination of the oscillating arms or bars G H, secured to the pinion E, and cog-

wheel F, which turn loosely on the horizontal shaft A, and pinions K L, and cog-wheel M for gearing the two arms together, substantially in the manner and for the purpose described.

GEORGE E. CLAY.

Witnesses:

FRANCIS E. MORRIS,
RUDOLPH LEHMICKE.