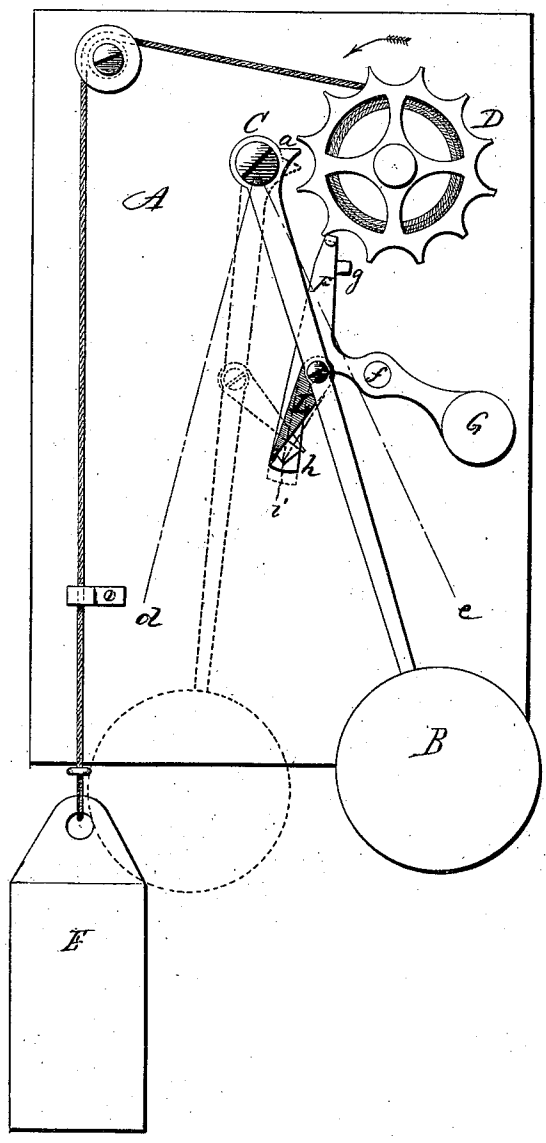
A. E. HOTCHKISS.

MECHANICAL MOVEMENTS.

No. 193,871. Patented Aug. 7, 1877.



Witnesses
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ARTHUR E. HOTCHKISS, OF CHESHIRE, CONNECTICUT.

IMPROVEMENT IN MECHANICAL MOVEMENTS.

Specification forming part of Letters Patent No. **193,871**, dated August 7, 1877; application filed December 30, 1876.

To all whom it may concern:

Be it known that I, ARTHUR E. HOTCHKISS, of Cheshire, in the county of New Haven and State of Connecticut, have invented a new Mechanical Movement; and I do hereby declare the following, when taken in connection with the accompanying drawing and the letters of reference marked thereon, to be a full, clear, and exact description of the same, and which said drawing constitutes part of this specification, and represents a front view.

This invention relates to an improvement in mechanical movement, the object being to impart to a vibrating or oscillating device an intermittent force to maintain the reciprocating movement required, with special reference to clock and like movements.

It consists in combining, with a free reciprocating device, an impulse-wheel with power applied thereto to give a rotary movement, a stop to arrest and hold the said wheel, with a trip in connection with the said reciprocating device, by means of which said reciprocation will intermittently trip the said stop and free the wheel, to impart a new impulse to the reciprocating device, as more fully hereinafter described.

As represented in the accompanying illustration, the invention is shown as applied to a pendulum, in which A represents the frame; B, the pendulum suspended from a pivot, C, so as to swing freely to right and left. The less friction upon this pivot the better and more perfect the operation.

D is a toothed wheel, the number of teeth being immaterial. In connection with this, power is applied either by a spring, or, as here represented, by a weight, E, the tendency of which is to turn the wheel toward the pendulum, and its relative position to the pendulum should be so that the axis of the wheel will be in nearly a horizontal line with the axis of the pivot.

The pendulum is constructed with a projection, *a*, toward the wheel, the projection extending to within the path of the teeth on the wheel D.

F is a stop-lever, hung at *f*, and provided with a spring or weight, G, the tendency of which is to hold the lever F against the stop *g*, and in that position one of the teeth of the wheel D rests upon the end of the lever F, which will prevent the wheel from being turned.

On the pendulum-rod there is hung a trip, L, loose, and free to turn or swing independent of the pendulum-rod, except that by its pivot it moves back and forth with the pendulum.

The lever F extends down, and is constructed with a notch or other suitable strike or bearing, *h*, in the path of the trip L, as the pendulum swings to the right and left, and so that in full movement, as from the line *d* to the line *e*, the trip L will pass freely over and beyond the bearing *h*, and, on returning, will in like manner pass over it and beyond, in one passage striking upon one side and riding entirely over, and on the return striking upon the other side, and as represented in the drawing, and will so continue to do until the swing of the pendulum has been so much reduced that the trip will not pass beyond the bearing, as indicated by broken lines *i*. In that case the trip will rest in the seat. Then, on the return of the pendulum, the lever will be depressed because of the cam-like action of the trip resting in the bearing.

This depression of the lever F frees the wheel D, and the power brings the next advancing tooth onto the projection *a*, and imparts to the pendulum a new impulse, which will cause it again to take its extreme swing, the wheel being arrested by the lever F, returning to its position after the pendulum has passed. Thus, a continuous vibration of the pendulum will be maintained, the time between the necessary impulses to be given depending chiefly upon the freedom with which the pendulum swings.

Instead of the pendulum, a balance-wheel and spring may be substituted, the wheel to receive its impulse in the same manner as imparted to the pendulum. I therefore do not wish to be understood as confining this invention to the pendulum, but to a device hav-

ing a reciprocation, whether it be rotative or vibratory.

I claim—

In combination with a free reciprocating device, an impulse-wheel with power applied thereto to give a rotary movement, a stop to arrest and hold the said wheel, with a trip in connection with the said reciprocating device, by means of which the reciprocation will intermittently trip the said stop and free the wheel, substantially as specified.

ARTHUR E. HOTCHKISS.

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