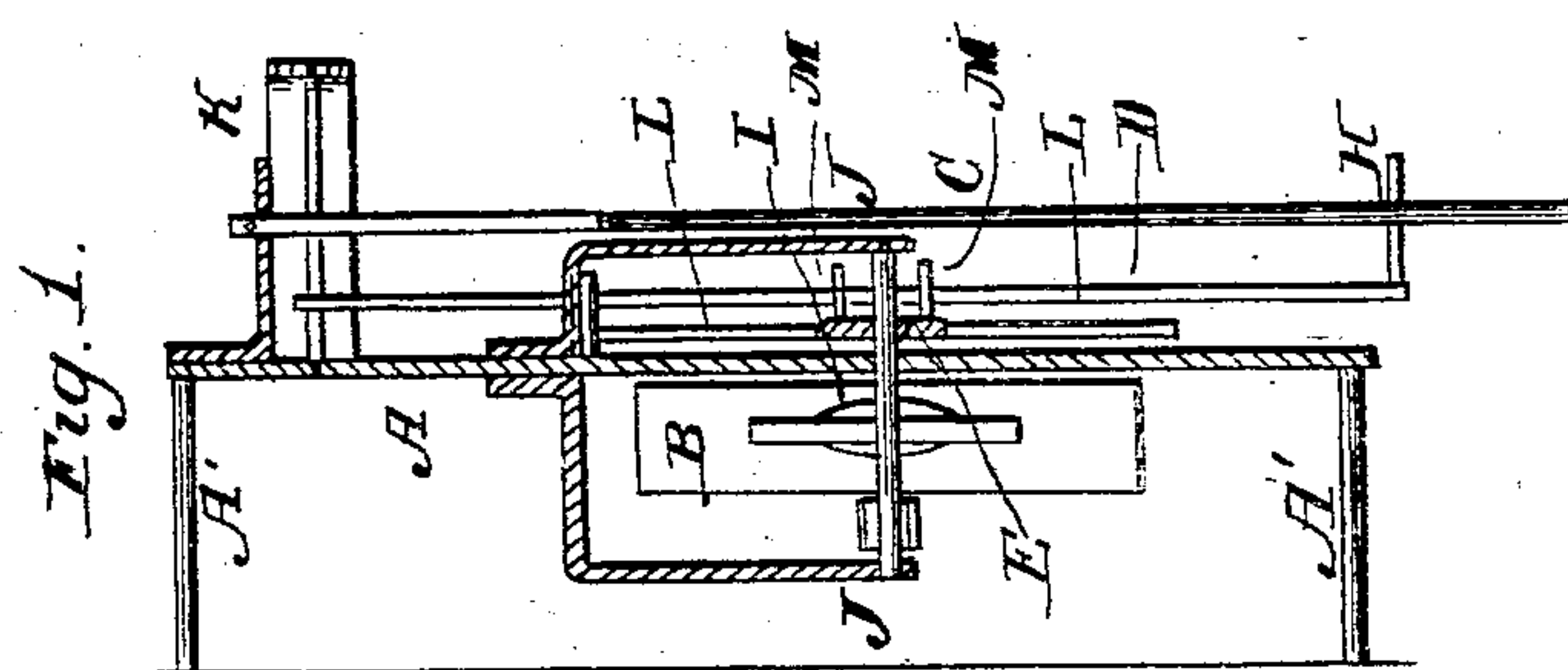
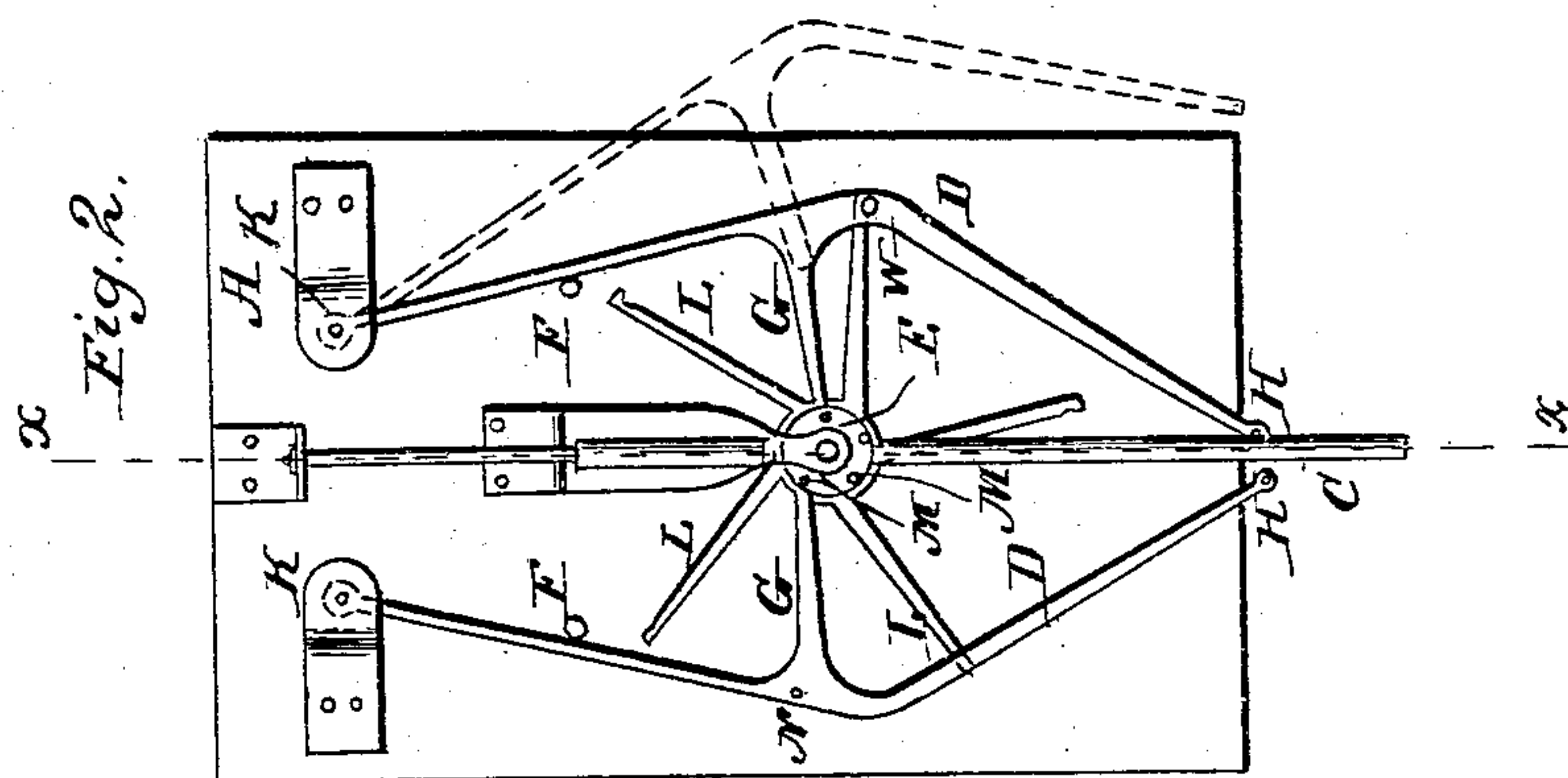


E. GROUX.
Clock Escapement.

No. 57,315.

Patented Aug. 21, 1866.



Witnesses:

John D. Livingston
Wm. Hewitt

Inventor:

Eugile Groux
Per Munn & Co
Attorneys

UNITED STATES PATENT OFFICE.

EMILE GROUX, OF ROME, NEW YORK.

IMPROVEMENT IN CLOCK-ESCAPEMENTS.

Specification forming part of Letters Patent No. 57,315, dated August 21, 1866.

To all whom it may concern:

Be it known that I, EMILE GROUX, of Rome, Oneida county, State of New York, have invented a new and useful Improvement in Clock-Escapements; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a side view of the frame of a clock with my improvement applied. Fig. 2 is a front view.

Similar letters of reference indicate like parts.

This invention relates to the improvement of the escapement of clocks, whereby a constant and equal force is applied to impel the pendulum and cause it to vibrate with regularity.

The letter A designates the front plate, and A' two of the pillars of the frame, of a clock, the place of the back plate being indicated by a dark line, and the train of clock-work being left out of the view. C is the pendulum-rod. I is the shaft of the escapement. It goes through the plate A, and its ends have bearings in brackets J J, one of which is on the back part and the other on the front of the plate. A fly-wheel, B, is fixed on said shaft behind the plate, and the escapement E is fixed on it in front of the plate, the front bracket, J, which supports the front end of shaft I, being within the plane of vibration of the pendulum.

The impulse-teeth of the escapement are seen at M, being arranged near the rim of the plate E' of the escapement, so that they can be engaged by the pallets G G.

The letters L designate locking-teeth, whose number agrees with the number of the teeth M and whose length is such as to bring them in contact with pins N N, which project from the inner surface of the pallet arms or levers D D in line with the pallets G G thereof. The pallets G G extend toward each other from the inner edges of bent pendulous arms D D, which are suspended from rods or pivots K K, placed respectively on opposite sides of the point of suspension of the pendulum-rod.

Each rod is so bent as to form an obtuse angle at a point a little distance below the level of the axis I of the escapement, from which point it is bent inward, so that its end, when at rest, will hang near to the vertical plane in which the pendulum hangs when it also is in a state of rest. Each rod D also has at its end a pin, H, projecting forward past the pendulum-rod, so that when the pendulum is vibrated the pins H H will be brought into contact with it alternately, thereby imparting to the pendulum the impulse received by the pallets from the escapement. The swing of the pallets inward is limited by stop-rods F F, projecting at right angles from the plate between the upper parts of the arms D, their several positions being such as to permit the pallets to swing inward just far enough to engage the impulse-teeth M of the escapement.

It will be observed from the construction here shown that the pallets, being placed on pendulous arms, act by gravity against the rod C of the pendulum when they swing inward after each impulse given to them by the teeth M of the escapement, and consequently the pendulum is actuated in each direction by an equal force at every vibration of the pallets, the gravitating movements of the pallet-arms D not being disturbed or affected by any irregularity of the train or by obstructions arising from dirt or impure or defective oil, and therefore the arc described by the pendulum will be constant, or nearly so. The plan of escapement here shown lessens the liability of the escapement to trip, and the pendulum will be less liable to wobble, the pallet-pivot being brought farther back than the suspension-point of the pendulum.

An astronomical clock made on this principle, with pallets and pallet-holes jeweled, will keep time to a few seconds a year, and a turret-clock on my principle, with cast-iron wheels, will keep time to less than a second a week, no matter how many or how large the dials may be.

The pallet-arms, it will be seen, are lifted in such a manner that no secondary tripping can occur, the fly behind keeping it safe from tripping.

The wear of this escapement is less than

on a dead-beat or any other escapement. A pendulum weighing fourteen pounds with this escapement will only require, on single line, about two and three-quarter pounds weight, while on any other it would require nearly six pounds.

I claim as new and desire to secure by Letters Patent—

The combination of the pendulous pallet arms or levers with the escapement, substantially as herein shown and described.

EMILE GROUX.

Witnesses:

A. B. BLAIR,
L. YALE.