

C. FASOLDT.  
Clock Escapements.

No. 137,603.

Patented April 8, 1873.

Fig. 1.

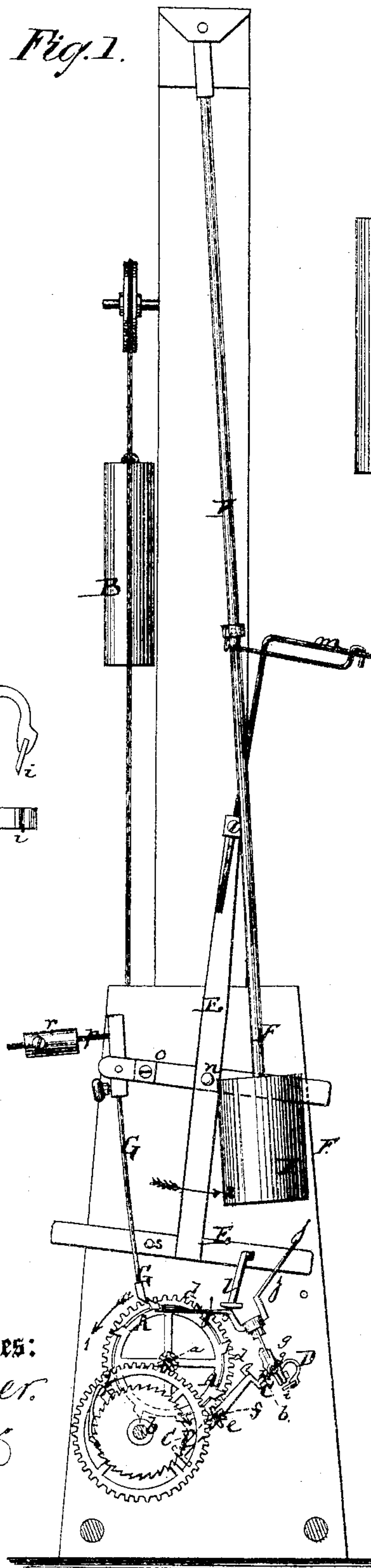


Fig. 2.

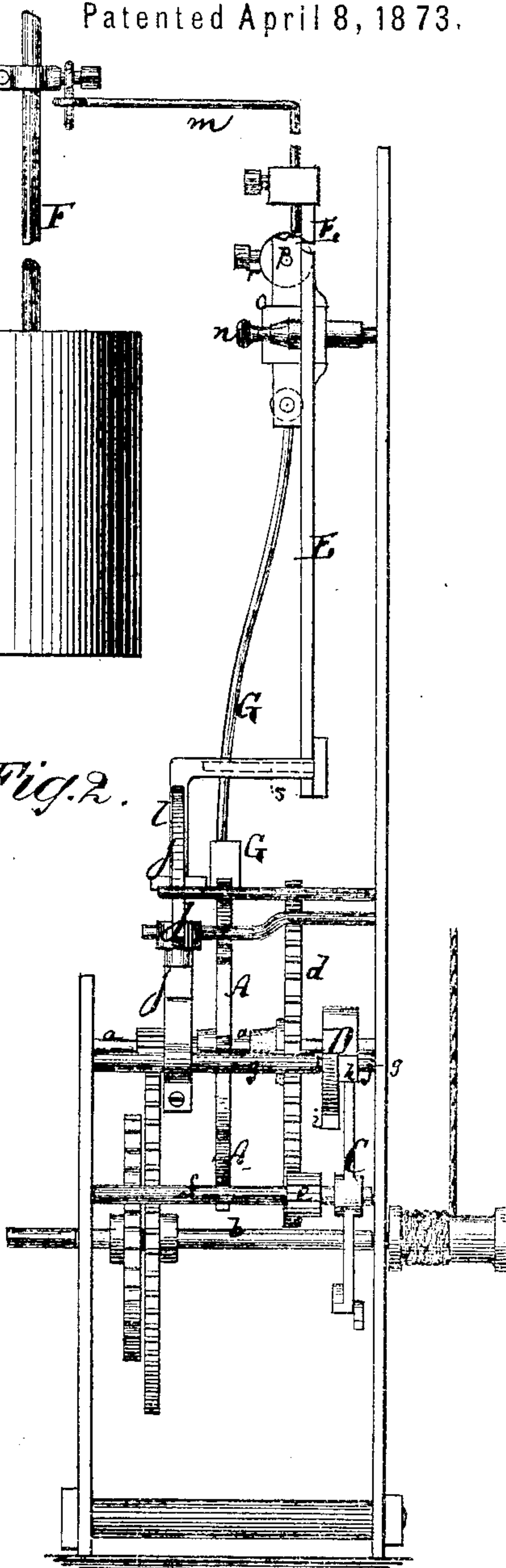


Fig. 3.

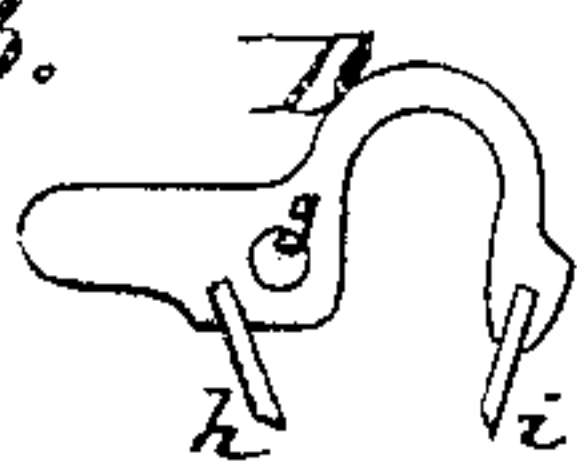


Fig. 4.



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# UNITED STATES PATENT OFFICE.

CHARLES FASOLDT, OF ALBANY, NEW YORK.

## IMPROVEMENT IN CLOCK-ESCAPEMENTS.

Specification forming part of Letters Patent No. **137,603**, dated April 8, 1873; application filed November 4, 1872.

*To all whom it may concern:*

Be it known that I, CHARLES FASOLDT, of Albany, in the county of Albany and State of New York, have invented a new and Improved Escapement for Clocks, Chronometers, &c., of which the following is a specification:

Figure 1 is a face view, partly in section, of my invention. Fig. 2 is an enlarged side view thereof. Fig. 3 is a detail face view, and Fig. 4 a bottom view of the locking and unlocking escapement-lever.

Similar letters of reference indicate corresponding parts.

This invention has for its object to so impart the impulse to the pendulum of an astronomical or other clock that the said pendulum will not receive it directly from the escape-wheel, but indirectly by a gravity arm or lever whose oscillations are created by the escapement. In this manner a surplus power may be imparted to the clock without increasing the oscillation of the pendulum, and a complete regulation is obtained.

In fact, I would prefer to apply greater force to the clock mechanism than is absolutely required and momentarily consumed, and to utilize the surplus in properly moving said gravity-arm and regulating the clock. The chief point of novelty is, therefore, the direct application of power to the regulating apparatus.

My present invention is based upon the United States Letters Patent which were granted to me the 1st day of February, 1859, and March 7, 1865, more especially upon the latter.

In the accompanying drawing, the letter A represents the impulse-escapement wheel mounted upon an arbor, *a*, to which rotary motion is imparted in the direction of the arrow 1, Fig 1, by gear connection with the main arbor *b*, which is rotated by spring or weight B. A toothed wheel, *d*, in the arbor *a* gears into a pinion, *e*, on the arbor *f*, which last-mentioned arbor carries the sectional or locking wheel C. This wheel has a suitable number of projecting arms—two, four, six, or more or less—two being shown in the drawing. D is the locking and unlocking escapement, pivoted at *g* to the supporting-frame of the clock, and serving alternately to arrest and liberate the arms of the section-wheel C when they strike against and escape from its pallets *h* and

*i*. To the escapement-lever D is rigidly connected the unlocking-fork *j*, which is a V-shaped bar, over whose inclined inner faces an unlocking-piece, *l*, attached to the lever E, is moved to swing it to one side and the other alternately. The pendulum F is by the crutch *m* connected with the lever E, and causes the same to vibrate with it, the lever being at *n* pivoted to the frame of the clock. Every vibration of the lever E will produce, by its contact with the fork *j*, a vibration of the escapement-lever D. Every other vibration of the lever D will bring another arm of the section-wheel in contact with it. Thus, if the wheel C has but one arm with two prongs at the end, it will make one rotation at every back and forward motion, and impart one impulse to the pendulum through the gravity-arm. By four prongs on one or each arm, one impulse is imparted to the gravity-arm, the same having made four oscillations; by six prongs, six oscillations and one impulse, &c. The drawing represents it with two arms, but only one of these is shown to have projecting detents at the ends; and, therefore, the wheel C makes one complete revolution to every double oscillation of the pendulum.

The proportionate diameters of the wheels *d* and *e* are such that the wheel A is moved the space of one tooth during each rotation of the wheel C, or part of rotation, as the case may be. Thus, in the drawing the wheel A is represented with eight teeth, and it makes one-eighth of a revolution whenever allowed to be turned by the liberation of the wheel C.

To a projecting arm, *o*, of the lever E is pivoted a gravity-lever, G, whose lower end is suspended directly over the wheel A. Near the upper end the lever G has a projecting arm, *p*, with an adjustable weight, *r*, thereon.

Whenever the wheel A is turned one of its teeth bears against the lower end of the lever G and moves it along, thereby giving the requisite impulse or renovation of power to the pendulum through the lever E; after such tooth of the wheel A has carried the gravity-lever G to the end of the impulse, said lever remains in that position until drawn out by the oscillation of the pendulum, then drops upon its resting-point *s* that projects from the lever E into a neutral position, and is in such position car-

ried clear of the teeth of A, during the return vibration, in the direction of the arrow 2 of the lever E. As soon as the lever E commences to swing in the direction opposite to that indicated by the arrow 2 the lever G will at once be acted upon by the next tooth of the wheel A, and so forth.

It will be observed that in the escapement proper I have departed from my former patent by separating the several parts A C D, and mounting them upon independent arbors.

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

1. The combination of the escapement-wheel A, section-wheel C, and lever D with each other, when they are all mounted upon separate arbors, as set forth.

2. The gravity-lever G pivoted to an arm of the lever E, to be operated by the escapement-wheel A, substantially as herein shown and described.

3. The lever E provided with the pin s, which serves as a support for the lever G in its neutral position, as set forth.

4. The combination of the pivoted gravity-arm G with the vibratory lever E provided with a pin or equivalent stop, s, and an arm, e, the fork j, lever D, section-wheel C, and escapement-wheel A, as shown and described, for the purpose specified.

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Witnesses:

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