

D. J. MOZART.

Escapements for Watches.

No. 140,944.

Patented July 15, 1873.

Fig 1

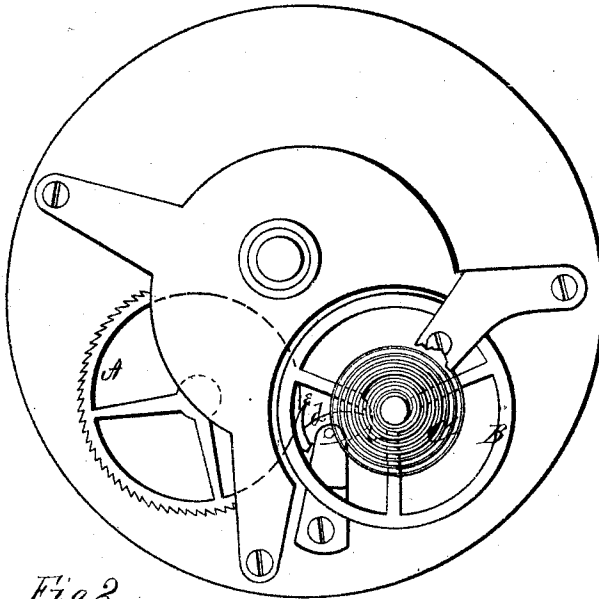


Fig 2

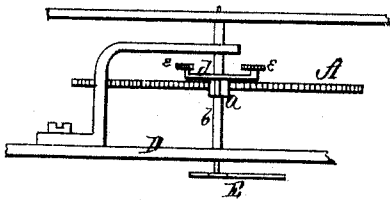


Fig 3

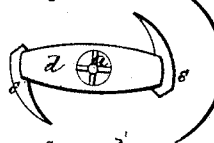


Fig 5

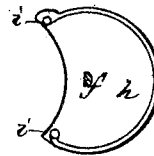
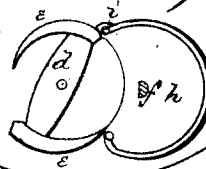
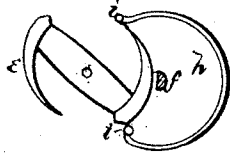


Fig 4



Witnesses:

Charles L. Ousand
C. L. Ewert

Inventor.

D. J. Mozart
per Alexander D. M.

Attorneys.

UNITED STATES PATENT OFFICE.

DON J. MOZART, OF ANN ARBOR, MICHIGAN.

IMPROVEMENT IN ESCAPEMENTS FOR WATCHES.

Specification forming part of Letters Patent No. **140,944**, dated July 15, 1873; application filed May 14, 1873.

CASE A.

To all whom it may concern:

Be it known that I, DON J. MOZART, of Ann Arbor, in the county of Washtenaw and in the State of Michigan, have invented certain new and useful Improvements in Watches; and 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.

The nature of my invention consists in the construction and arrangement of a watch-movement to form an escapement having no setting-point or dead-center, as will be herein after more fully set forth.

In order to enable others skilled in the art to which my invention appertains to make and use the same, I will now proceed to describe its construction and operation, referring to the annexed drawing, in which—

Figure 1 is a view of so much of a watch-movement as will illustrate my invention; and Figs. 2, 3, 4, and 5 are detached views of the parts constituting my invention.

A represents the escapement-wheel, B the balance-wheel, and C the hair-spring, of a watch-movement. The escapement-wheel A meshes with a four-cogged pinion, *a*, upon a shaft, *b*, which passes up through the dial-plate D, and has upon it the second-hand E. These detent-cogs have rounded surfaces, on which the teeth of the escapement-wheel repose or lock. On the shaft *b* is secured a plate, *d*, which has a cam or oval impulse-fang, *e*, at each end, as shown in Figs. 3 and 4. *f* is the shaft or staff of the balance-wheel B, and upon the same is secured a disk, *h*, which is cut out on one side, as shown in Figs. 4 and 5, and at each end of said cut-out is inserted a ruby-pin, *i*, to work against the fangs *e e* upon the escapement-wheel shaft *b*.

The movement of these parts is readily understood by reference to Fig. 4, in which I have shown the fangs in the two positions in which they are stopped by the ruby-pins *i i*. One of the teeth of the escapement-wheel, at every oscillation of the balance-staff and disk

with the two ruby-pins, reposes or locks on the rounded surface of the detent-cogs until the balance-wheel, by the force of the hair-spring, has returned to the setting-point and expended its force, which does not occur until one of the ruby-pins of the disk has come in contact with one of the fangs or impulse-points *e*. One of the ruby-pins, at each return of the balance by the force of the hair-spring, strikes one of the fangs, and this touch against the fangs serves to unlock the tooth of the escapement-wheel from one of the cogs of the four-leaf detent, which action instantly lets the force of the mainspring against the side of the detent-tooth. One of the fangs takes hold of the opposite ruby-pin the instant it leaves the other ruby-pin, thus alternately unlocking the detent and giving the required impulse to the balance, and leaving the staff, balance, and disk entirely free from the least pressure of the motive-power at all times, except when giving the impulse.

The ruby-pins unlock the escapement-wheel from the detent by the unspent force of the hair-spring, and places alternately each of the oval impulse-fangs in the exact position to give the balance its impulse both backward and forward, forming an escapement with no setting-point or dead-center.

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

The detent *a* and plate *d* with fangs *e e* upon the shaft *b*, and the disk *h* with the ruby-pins *i i* upon the balance-staff *f*, all constructed as described, and arranged to operate in combination with the escapement-wheel A, balance-wheel B, and hair-spring C, substantially as and for the purposes herein set forth.

In testimony that I claim the foregoing I have hereunto set my hand this 2d day of May, 1873.

DON J. MOZART.

Witnesses:

C. L. EVERT,
A. N. MARR.