

S. W. ROBINSON.

Clock Escapement.

No. 59,658.

Patented Nov. 13, 1866.

Fig. 1.

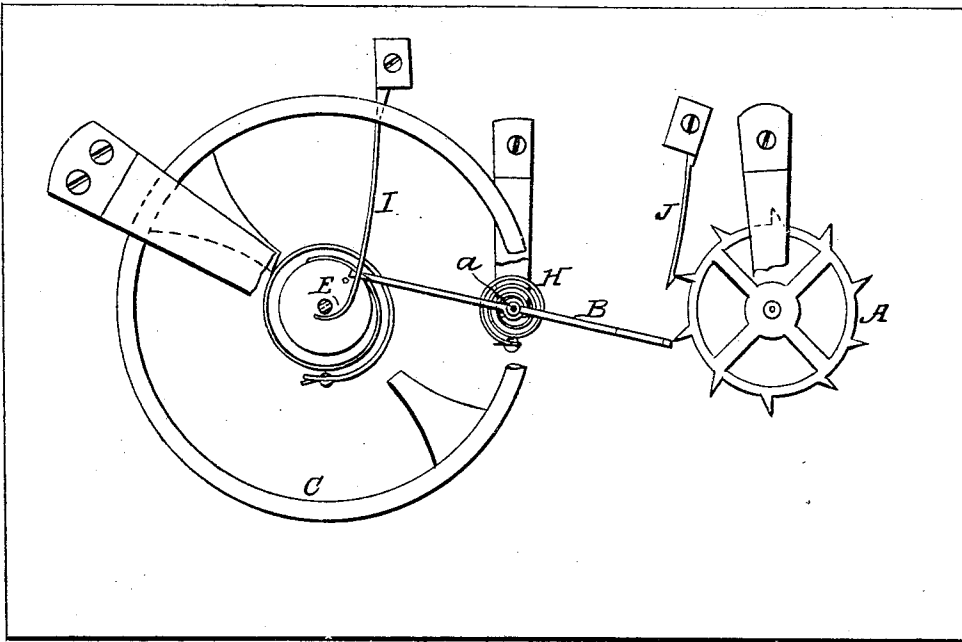
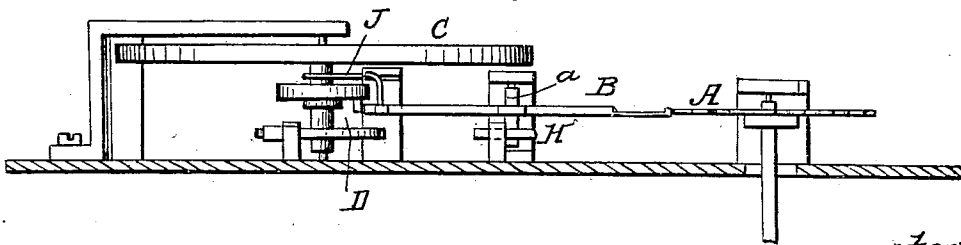


Fig. 2.



Witnesses:

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S. W. ROBINSON, OF DETROIT, MICHIGAN.

IMPROVEMENT IN ESCAPEMENTS FOR TIME-PIECES.

Specification forming part of Letters Patent No. **59,658**, dated November 13, 1866.

To all whom it may concern:

Be it known that I, S. W. ROBINSON, of Detroit, in the county of Wayne and State of Michigan, have invented a new and Improved Escapement for Time-Pieces; 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 represents a plan or top view of this invention. Fig. 2 is a longitudinal vertical section of the same.

Similar letters of reference indicate like parts.

The object of this invention is to impart to the balance impulses which shall be equal to each other in the amount of force, a single impulse being given at each double vibration of the balance. This purpose is effected by a lever acted upon by a spring, and applied, in combination with the escape-wheel, the balance, and two detents, in such a manner that the force required for unlocking the detents is derived entirely from the hair-springs of the balance and lever, while the power of the hair-spring, acting on the lever, imparts to the balance the desired impulse at each double vibration of said balance.

A designates the escape-wheel, which acts against its detent J with a force communicated to it through the train of wheels from the mainspring or weight. The detent J is composed of a thin spring, or otherwise, with a small hook at its end, and it is secured in such a position that the hook catches against one of the teeth of the escape-wheel and retains the same, unless released by the action of the lever B or by some other cause. Said lever has its fulcrum on an arbor, *a*, and said arbor connects with a hair-spring, H, which causes the lever B to bear on its detent I, as clearly shown in Fig. 1, with a force proportionate to the force of the hair-spring. This latter detent is so constructed as to become unlocked from the lever by a small projection, E, upon the axis of the balance-wheel C. This projection should

be so placed that the lever is unlocked at the proper instant to strike the pallet D of the balance; and in order to enable said lever to act on the pallet, and also on the detent I, its end is fork-shaped, or otherwise so constructed that it has two bearing-points, one of which acts on the detent, and the other at the proper moment on the pallet.

The impulse thus imparted to the balance is given entirely by the hair-spring H, which acts on the arbor *a* of the lever B. When the lever has passed a sufficient distance to clear the pallet of the balance, it continues its motion for a very short space, until its opposite end unlocks the detent J from the escape-wheel, which immediately upon being detached from said detent acts by one of its teeth on the lever B, and relocks the same on its detent I. As soon as this is accomplished the tooth of the escape-wheel passes off of the end of the lever B, and another tooth strikes and is held by the detent J. But an instant is required to put the lever back to its original position, and the mechanism is in readiness to impart another impulse to the balance.

The impulses are thus all given by the hair-spring H, and they can vary perceptibly only by the variations of the temperature. The error caused thereby can be easily compensated for on the balance C. The impulses are entirely independent of the inequalities and imperfections which may exist in the wheel-work, and the necessity of a barrel and fusee in nice chronometers is avoided, and it is only necessary to jewel the holes for the balance-pivots, the lever-pivots, and the pivots of the detent I.

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

The lever B and hair-spring H, in combination with the detents I J, escape-wheel A, and balance C, constructed and operating substantially as and for the purpose described.

S. W. ROBINSON.

Witnesses:

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