A. H. POTTER.

Escapement for Watches.

No. 168,582. Patented Oct. 11, 1875.

Fig: 1.

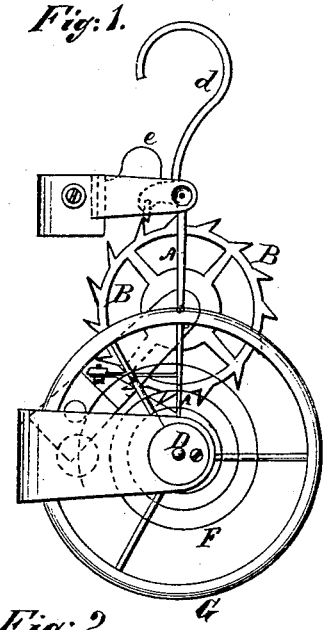


Fig: 2.

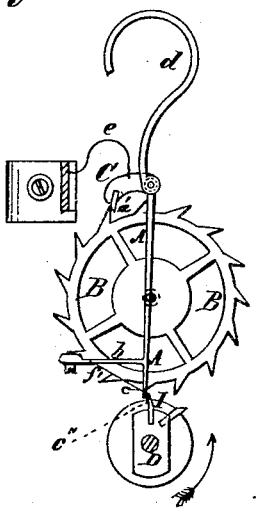


Fig: 4.

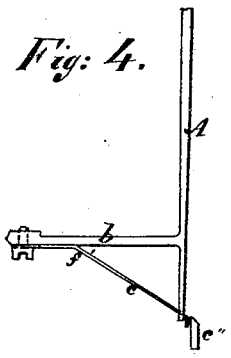
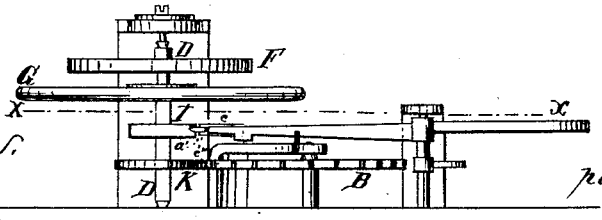


Fig: 3.



Witnesses:
Henry Eichling
H Wells Jr

Inventor:
Albert H. Potter
per James A Whitney
Atty.

UNITED STATES PATENT OFFICE.

ALBERT H. POTTER, OF CHICAGO, ILLINOIS, ASSIGNOR OF ONE-HALF HIS RIGHT TO JOHN H. McMILLAN, OF SAME PLACE.

IMPROVEMENT IN ESCAPEMENTS FOR WATCHES.

Specification forming part of Letters Patent No. **168,582**, dated October 11, 1875; application filed August 11, 1875.

CASE D.

To all whom it may concern:

Be it known that I, ALBERT H. POTTER, of Chicago, in the county of Cook and State of Illinois, have invented an Improvement in Watches, of which the following is a specification:

In the ordinary chronometer-escapement the trip-spring is arranged longitudinally with and upon the locking-bar, and the tripping-pallet is in extreme proximity to the center of motion in the balance, and consequently the balance must pass through a large arc before the tripping-pallet can pass the trip-spring preparatory to renewed action upon the bar, and this renders the escapement liable to be stopped from external agencies, as jamming, and the like. This invention is designed to obviate this serious defect, and also to reduce the friction of the acting parts to a lower degree than has hitherto been found practicable.

With this object in view, the invention consists in a locking-bar having at one of its ends an arm carrying a peculiarly-arranged trip-spring, and at the other a locking-pallet arranged close to the center of motion in the bar, in combination with the trip and impulse pallets of the balance, and with the scape-wheel, whereby the desired objects are effectually secured.

Figure 1 is a plan view of an escapement made according to my invention. Fig. 2 is a horizontal section of the same, taken in the line *x* of Fig. 3. Fig. 3 is a side view, and Fig. 4 is a detached view on an enlarged scale, of one portion of the same.

A is the locking-bar, pivoted at *a*, adjacent to the periphery of the scape-wheel B, and passing over the same, the scape-wheel being actuated from the mainspring in the ordinary or in any suitable way. The pivoted end of the locking-bar has formed upon it the locking-pallet C, the said pallet being at an angle to the length of the locking-bar, as shown in Fig. 2, and preferably having the stone or hardened steel tongue *a'* at its extremity, to diminish the friction of the aforesaid pallet when in contact with the teeth of the scape-wheel. The opposite free or vibrating portion of the locking-bar is furnished with a lateral arm, *b*, the said arm being at a slight but appreciable distance from the extremity of the bar, the said extremity being notched or recessed to permit the passage through it of the free outer end *c''* of a trip-spring, *c*. This trip-spring, instead of being arranged direct to the main length of the locking-bar, as in the old or ordinary chronometer-escapement, is attached to the outer end of the arm *b*, and extends at an angle more or less acute to the length of the locking-bar, with its extremity *c''* extending into and through the recess in the end of the latter, the aforesaid extremity of the trip-spring being turned into a position parallel to or longitudinal with the locking-bar, as shown more clearly in Fig. 4, to provide a lip or bearing for the action of the trip-pallet, as herein presently explained. Upon the pivoted end of the locking-lever is provided the counterpoise-arm *d*, and a spring, *e*, is arranged to press the locking-pallet C inward to the teeth of the scape-wheel. D is the balance-staff, upon which, disposed in the usual manner, are the hair-spring F and balance-wheel G. I is the trip-pallet, extending several times the distance from the axial line of the balance-staff usual with the trip-pallet of the old or ordinary chronometer-escapement. K is the impulse-pallet, arranged in relation with the teeth of the scape-wheel in the usual manner.

In the operation of the escapement, the movement of the balance-staff D in the direction of the arrow in Fig. 2 causes the trip-pallet I to impinge upon the lip or free end *c''* of the trip-spring *c*, and thereby to swing the locking-bar until the locking-pallet C is brought clear of the adjacent tooth of the scape-wheel B, thereby permitting the movement of the latter through the space of one tooth, as required in the operation of the works, the trip-pallet being finally brought clear of the spring *c*, aforesaid, by the separation of its arc from that of the locking-bar, and this in time to permit the locking-pallet to catch upon the next succeeding tooth of the scape-wheel. In the opposite or return movement of the trip-

pallet I the spring *c* yields to permit the passage of said pallet, not in the arc described, by the end of the locking-bar, but in arc described from the axis of motion or point of attachment of the said spring on or to the arm *b*, indicated, for example, at *f'* in Figs. 2 and 4—in other words, in a direction more or less radial to the axis of motion of the locking-bar, or, as it were, directly away from the trip-pallet. By this means the trip-pallet is enabled to come back to its place behind the free end of the spring *c* almost instantaneously as compared with the old or ordinary chronometer-escapement, so that only a very slight portion of the arc of vibration of the balance-wheel is required to reinstate the trip-pallet for a repetition of its action upon the locking-lever, and in the same proportion the danger of stoppage during such portion of the arc of vibration is reduced, and the friction of the trip-pallet upon the trip-spring to a very great extent done away with.

What I claim as my invention is—

The locking-bar A, having at one end the arm *b*, carrying the trip-spring *c* at an acute angle to the said bar, and at the other provided with the locking-pallet C, in combination with the trip-pallet I, impulse-pallet K, and scape-wheel B, the whole arranged for operation substantially as and for the purpose specified.

ALBERT H. POTTER.

Witnesses:

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