

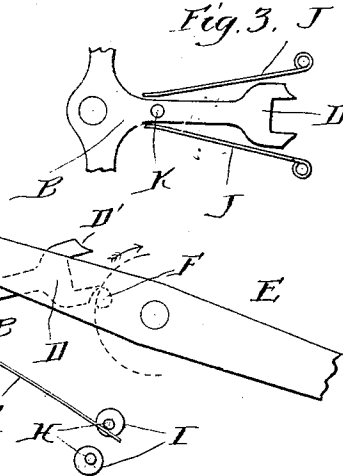
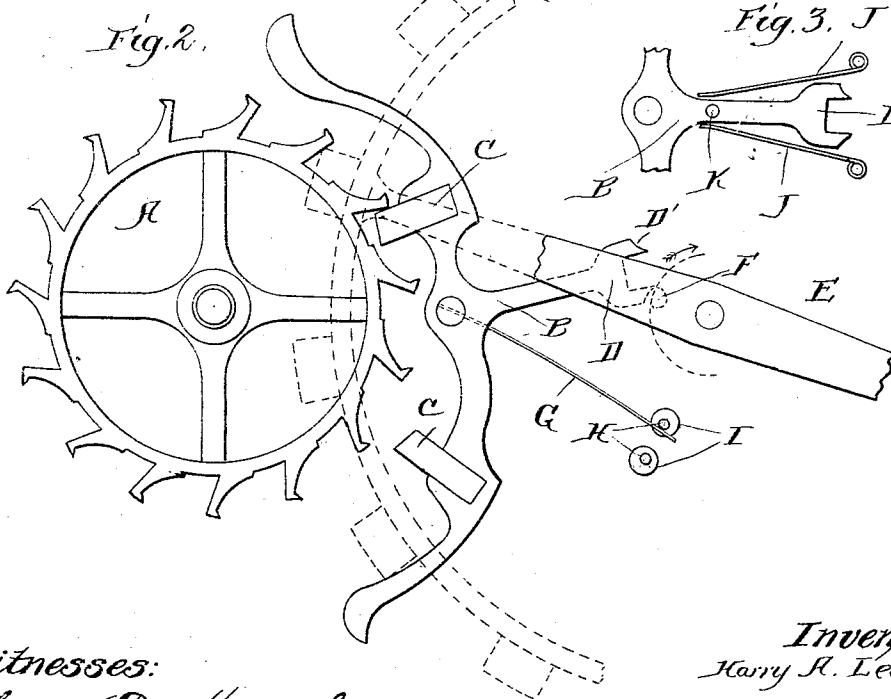
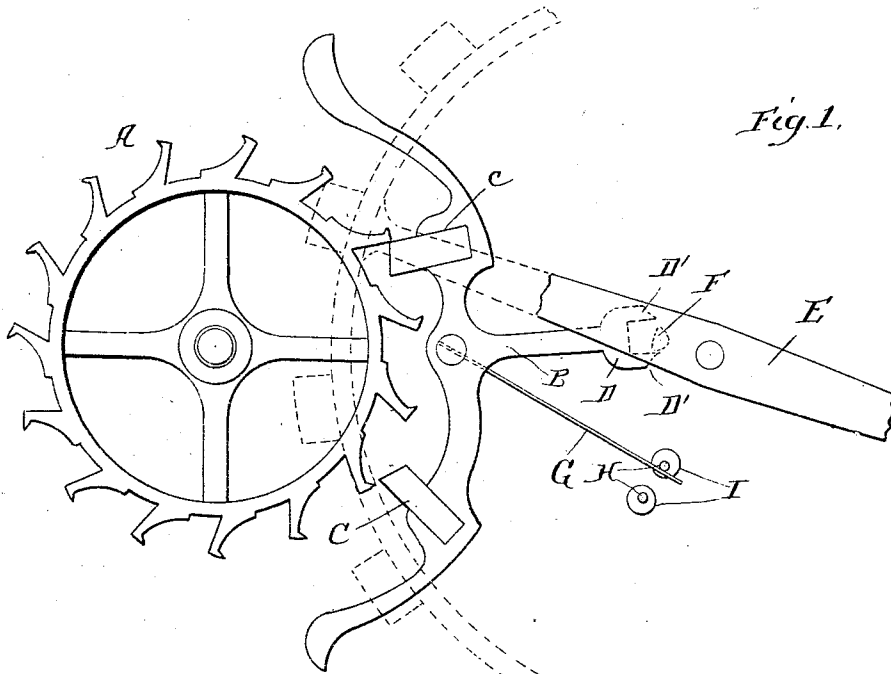
No. 764,137.

PATENTED JULY 5, 1904.

H. A. LEONARD.
ESCAPEMENT FOR WATCHES.

APPLICATION FILED JUNE 30, 1903.

NO MODEL.



Witnesses:

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UNITED STATES PATENT OFFICE.

HARRY A. LEONARD, OF PHILADELPHIA, PENNSYLVANIA.

ESCAPEMENT FOR WATCHES.

SPECIFICATION forming part of Letters Patent No. 764,137, dated July 5, 1904.

Application filed June 30, 1903. Serial No. 163,823. (No model.)

To all whom it may concern:

Be it known that I, HARRY A. LEONARD, a citizen of the United States, residing at Philadelphia, county of Philadelphia, and State of Pennsylvania, have invented a certain new and useful Improvement in Escapements for Watches and Clocks, of which the following is a specification.

My invention relates to a new and useful improvement in escapements for watches and clocks, and has for its object to provide an escapement having a spring or resilient banking.

With this end in view this invention consists in the details of construction and combination of elements hereinafter set forth and then specifically designated by the claims.

In order that those skilled in the art to which this invention appertains may understand how to make and use the same, the construction and operation will now be described in detail, referring to the accompanying drawings, forming a part of this specification, in which—

Figure 1 is an enlarged plan view of the escapement and portion of the balance-wheel, showing my improvement applied thereto; Fig. 2, a similar view to Fig. 1, showing the pin-jewel of the balance-wheel crowding the lever to one side, so as to pass into the fork. Fig. 3 illustrates a modified form of spring-banking.

It is a well-known fact that in escapements provided with positive and solid banking-pins it is possible by shaking the watch or clock to transmit to the balance such a violent movement that the pin-jewel will come in contact with the outside of the fork of the lever, and thus oscillate the escapement many more times per minute normally, and thus cause the watch or clock to gain time. This would be a great disadvantage in timing-machines, such as are used for timing races of horses or birds; and the purpose of my invention is to prevent this and cause the clock or watch to run normally no matter how long or hard the same is shaken.

In the drawings, A represents the escapement-wheel.

B is the lever.

C represents the pallets.

D is the fork upon the end of the lever.

E is the cross-bar of the balance-wheel, upon which the pin-jewel F is located. Ordinarily the prongs of the fork D are extended much longer than shown in the drawings.

In my improved escapement I form the prongs of the fork as shown in the drawings, each prong being beveled, as indicated at D', and shortened, so that when the balance-wheel is oscillated violently so as to cause the pin-jewel F to strike upon the outside of the fork this pin-jewel will force the fork to one side, as allowed to do so by the spring-banking, until the pin-jewel may pass this prong of the fork and pass into the fork. Thus no matter how hard the watch is shaken the balance-wheel will only make the required oscillations, the only difference being it will press the lever to one side each time the pin-jewel strikes the outside of the fork, and therefore the escapement-wheel will only be escaped the required number of escapements per minute, and the watch or clock will run on time.

In Fig. 2 I have shown the pin-jewel in the act of forcing the lever to one side, the pin-jewel traveling in the direction of the arrow.

I do not wish to be limited to any particular form of spring-banking, but wish to claim, broadly, the idea of forming a spring or resilient banking for the lever.

In Figs. 1 and 2 I have shown a light spring G secured to the arbor of the lever B, and the free end of this spring lies between two banking-pins H, so that in the normal movement of the escapement the spring G will simply oscillate between the two pins H, and thus limit the movement of the lever; but this spring G will allow the jewel-pin F to crowd the lever to one side, as shown in Fig. 2, the spring bending, as shown, to allow for this movement.

I have shown the banking-pins adjustable, they extending upward from the screws I, which are threaded through the plate of the watch or clock. The pins H are set eccentrically upon the ends of the screws I, and thus by turning the screws the distance can be increased or decreased between the banking-pins.

In Fig. 3 I have shown another form of

spring-banking in which two light springs J are secured to a stationary portion of the frame of the watch or clock, and a pin K is secured to the lever which strikes against one or the other of the springs upon each oscillation of said lever. Thus it will be seen that different forms of spring-banking could be used, and, as I have said before, I do not wish to be limited to any particular form, as numerous devices could be used to provide this spring or resilient banking for the lever. Therefore I do not wish to be limited to the exact construction, as different modifications could be made without departing from the spirit of the invention.

Having thus fully described my invention, what I claim as new and useful is—

1. In combination with a lever, pallets, escapement-wheel, balance-wheel and pin-jewel of a watch or clock, a fork formed upon the end of the lever, the prongs upon said fork being shortened and beveled upon each side, a spring secured to the arbor of the lever at one end, banking-pins between which the free end of the spring is adapted to oscillate, said spring adapted to limit the movement of the lever normally but to allow the same to be crowded to one side by the pin-jewel when the

same strikes upon the outside of the fork, as specified.

2. In combination with a lever, pallets, escapement-wheel, balance-wheel and pin-jewel of a watch or clock, a fork formed upon the end of the lever, the prongs upon said fork being shortened and beveled upon each side, one straight flat spring secured to the lever at one end, banking-pins between which the free end of the spring is adapted to oscillate, as specified.

3. In combination with a lever, pallets, escapement-wheel, balance-wheel and pin-jewel of a watch or clock, a fork formed upon the end of the lever, the prongs upon said fork being shortened and beveled upon each side, a single spring carried by the lever, adjustable banking-pins between which said spring is adapted to oscillate, as and for the purpose specified.

In testimony whereof I have hereunto affixed my signature in the presence of two subscribing witnesses.

HARRY A. LEONARD.

Witnesses:

PAUL O. KIRSCHMANN,
HARRY BALLENGER.