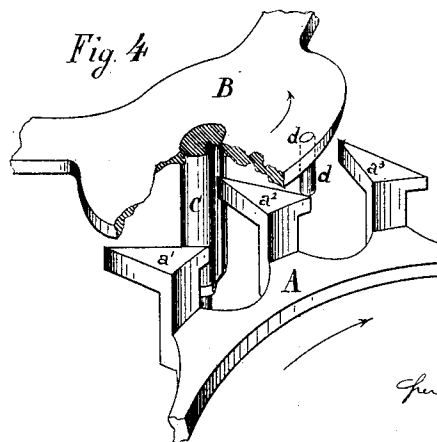
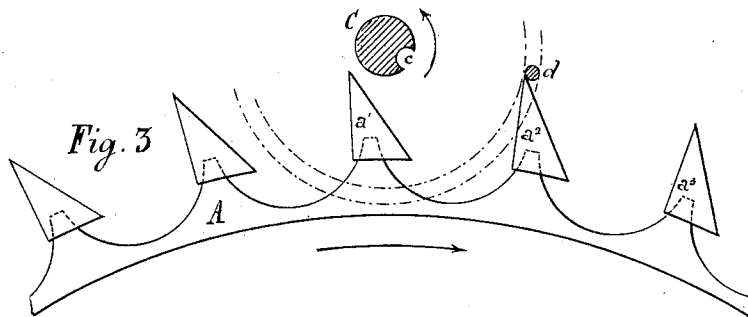
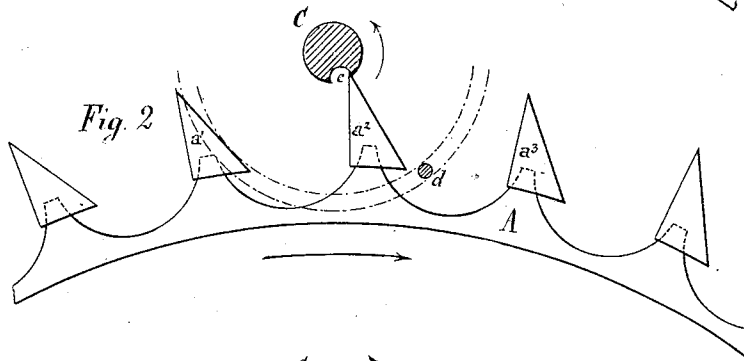
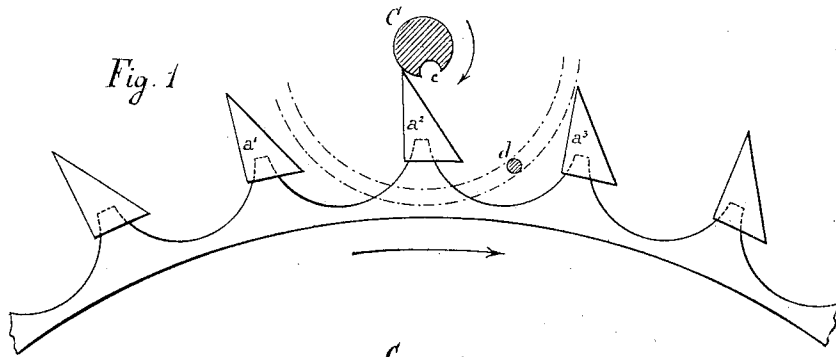


(No Model.)

A. HEBERLE.  
WATCH ESCAPEMENT.

No. 258,646.

Patented May 30, 1882.



Witnesses

Chas. H. Smith  
J. Hail

Inventor

Albert Heberle  
per Lemuel W. Serrell

# UNITED STATES PATENT OFFICE.

ALBERT HEBERLE, OF UEBERLINGEN, GERMANY.

## WATCH-ESCAPEMENT.

SPECIFICATION forming part of Letters Patent No. 258,646, dated May 30, 1882.

Application filed January 12, 1882. (No model.)

To all whom it may concern :

Be it known that I, ALBERT HEBERLE, of Ueberlingen, in the Empire of Germany, have invented an Improvement in Watch-Escape-  
5 ments, of which the following is a specification.

My invention relates to an improved escapement, the chief advantages of which are the following: First, the tooth of the escapement-wheel rests at a very little distance from  
10 the geometrical axis of the arbor of the balance, and consequently produces very little friction during the rest; second, the impulse is given to the balance at a point more distant from the geometrical axis of the balance  
15 than in the cylinder-escapement; third, great facility is afforded for the replacing the pieces which compose the escapement, which renders the improvement particularly well suited for  
20 "interchangeable" watches. My escapement has consequently the same advantages as the duplex escapement, and is at the same time much easier to construct and less costly, without  
25 having the inconvenience, as is the case with the duplex, of easily coming to a stop when the bearer of the watch experiences a shake—for instance, when riding on horseback, or running, leaping, &c. This difference  
30 arises from the fact that in my escapement the impulse is given every alternate vibration and during a larger portion of the vibration than in the duplex escapement.

In the annexed drawings, Figure 4 shows a perspective view of my escapement. Figs. 1,  
35 2, and 3 show the different phases of its working.

In all the figures the same letters refer to the same pieces.

The escapement-wheel A bears the desired  
40 number of teeth  $a^1 a^2 a^3$ , &c., each formed as a triangle, the apex of which rests against the axis of the balance, and one side of which serves to give an impulse to the balance. The teeth are elevated above the surface of the

wheel, as seen in Fig. 4. The impulse-teeth may have a flat or convex surface, and make  
45 with the radius of the wheel a more or less acute angle.

The portion of the axis C of the balance B which acts as the roller is provided with a  
50 longitudinal groove, *c*. The central part or hub of the balance is provided with a pin, *d*, which is parallel with the axis of the balance, and sufficiently far from the axis of the balance to swing behind the impulse-teeth and  
55 above the surface of the escapement-wheel. The distance between the centers of the balance and the escapement-wheel is a little less than the sum of the radii of the latter and of  
60 the axis C, so that, as shown in Fig. 1, the end of the escapement-wheel tooth bears against the roller or axis C as long as it does not meet the notch *e* of the latter. During the whole  
65 dead vibration of the balance—viz., as long as the axis of the balance moves in the direction shown by the arrow in Fig. 1—the tooth of the escapement-wheel remains against the  
70 arbor of the balance; but when moving the other way, and at the moment the notch *e* meets the end of the tooth, this latter falls into the notch *e*, which allows the tooth to pass, as  
75 seen in Fig. 2. The impulse-tooth strikes the impulse-pin *d* and gives to the balance the required acceleration.

Fig. 3 shows the position of the escapement when the pin is about to leave the impulse-  
80 tooth.

I claim as my invention—

In an escapement, the triangular impulse and escapement teeth elevated above the surface of the escapement-wheel, in combination  
85 with the balance having a grooved arbor and the impulse pin *d*, substantially as specified.

ALBERT HEBERLE.

Witnesses:

E. KENDEL,  
PAUL BONZ.