

J. G. POWELL.
TOY WATCH.

No. 171,850.

Patented Jan. 4, 1876.

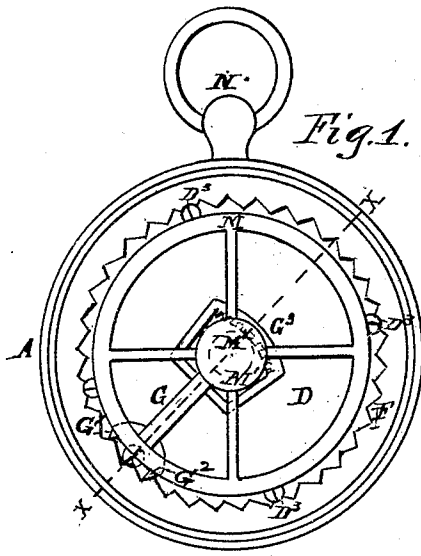


Fig. 2.

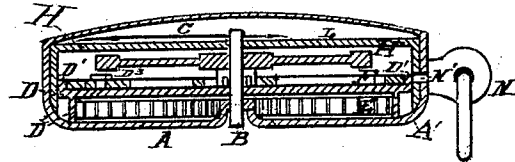


Fig. 3.

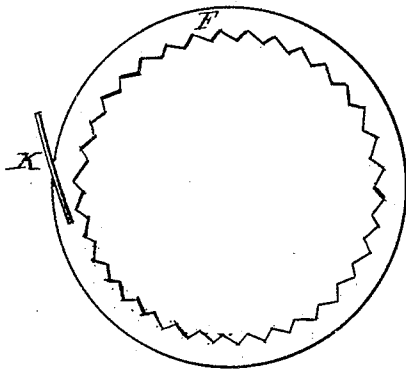


Fig. 4.



Witnesses
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UNITED STATES PATENT OFFICE.

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IMPROVEMENT IN TOY WATCHES.

Specification forming part of Letters Patent No. 171,850, dated January 4, 1876; application filed February 6, 1875.

CASE B.

To all whom it may concern:

Be it known that I, JOHN G. POWELL, of the city and county of Philadelphia, and State of Pennsylvania, have invented certain new and useful Improvements in Toy Watches for the amusement of children; and I do hereby declare the following to be a full, clear, and exact description thereof, reference being had to the accompanying drawings and letters of reference marked thereon.

The nature of my invention consists in combining upon one central winding-pillar a balance-wheel and an escapement rotating upon the same pillar; also, in an arrangement of the several parts, by which I am enabled to produce at a low cost, both of material and labor, a watch capable of winding and running for a short time with the ticking sound, and showing the motion of the hands on the dial so strongly, and requiring so little accuracy to permit working, that it is not prevented from working by the careless treatment to which children usually subject their toys.

Figure 1 shows a plan with the dial removed, so as to show the working parts; Fig. 2, a vertical section in the plane indicated by the dotted line X X, Fig. 1. Fig. 3 shows the annular escapement-wheel in detached plan view, and Fig. 4 the cap which forms the back of the dial and the winding-ratchet in vertical section.

The same letters of reference apply to the same parts in the several figures.

A represents the case; B, the central winding-pillar, bearing the hands C on the upper end, squared at the lower end to fit a winding-key, and bearing about midway of its length a wheel, D, fastened tightly on and turning with it. The outer edge of the wheel D is turned upward, either in a continuous flange, D¹, as shown, or turned up in ears or lugs, forming segments of a rim. On the under side of the wheel D a rim, D², is formed, which may either be made continuous, as shown, or a series of lugs forming segments of a rim may be substituted. The function of this rim D² is to afford a point of attachment for the outer end of the spring E, and to confine the spring E and prevent it from expanding so far as to become jammed between the plate D

and the bottom of the case A on the boss marked A'. The case A may be chambered from the outside, so as to form a chamber for the end of the key, and to permit the winding-pillar to be shortened, and thus avoid an objectionable and unsightly projection. In the chamber or recess formed by the rim D¹ on the wheel D is placed an annular internally-toothed wheel, F, which, engaging in the pulleys G¹ and G² of the lever G, having the fulcrum fixed in the wheel D, forms the escapement. The escapement-wheel F is held so as to turn freely in the recess in the wheel D by means of screws D³, or lugs so bent over the toothed wheel F as to permit it to rotate. Upon the annular wheel F is a spring, K, projecting into teeth I, formed in the cap H, which answers the purpose of a ratchet. The cap H is prevented from rotating in the case by a lug, N', in the case engaging in a notch in the rim of the cap, and upon its upper surface the cap H bears the dial L. A pendant, N, serves to hang the watch up, and forms a part of the lug N'. The lever G has a segment, G³, of an internal gear-wheel formed upon it, which engages in a pinion, M', fastened to the balance-wheel M, which turns freely on the central pillar B.

The operation of the watch is as follows: Upon winding it with a key, the pillar B rotates, carrying with it the hands C, the wheel D, annular escapement-wheel F, spring K, lever G, pinion M', balance-wheel M, and the outer end of the spring E. During the operation the spring K trails over the teeth I in the cap H.

The reaction of the spring E drives the wheel D, pillar B, hands C, and lever G in a direction opposite that in which it has been wound, and the spring K, engaging in the teeth I of the cap H, holds the annular wheel F, and prevents it from rotating, so that the pallets G¹ and G², in passing the teeth of the wheel F, impart a reciprocating motion to the lever G, which, by the internal segment G³ operating the pinion M', causes the balance-wheel M to vibrate. A loud ticking sound is thus produced simultaneously with a progressive motion of the hands.

What I claim as my invention is—

1. The combination of the internally-toothed escapement-wheel F with pawl K, ratchet I, revolving lever G, pallets G¹ and G², and balance-wheel M, as and for the purpose set forth and described.

2. The combination of the hands C, pillar B, cup H, pawl K, wheel F, wheel D, spring E, and case A, as set forth and described.

3. The wheel D, recessed on its upper side

to receive the wheel F, and provided with a rim, or equivalent device or devices, upon its under side, to restrict the expansion of the spring E, as set forth.

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Witnesses:

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