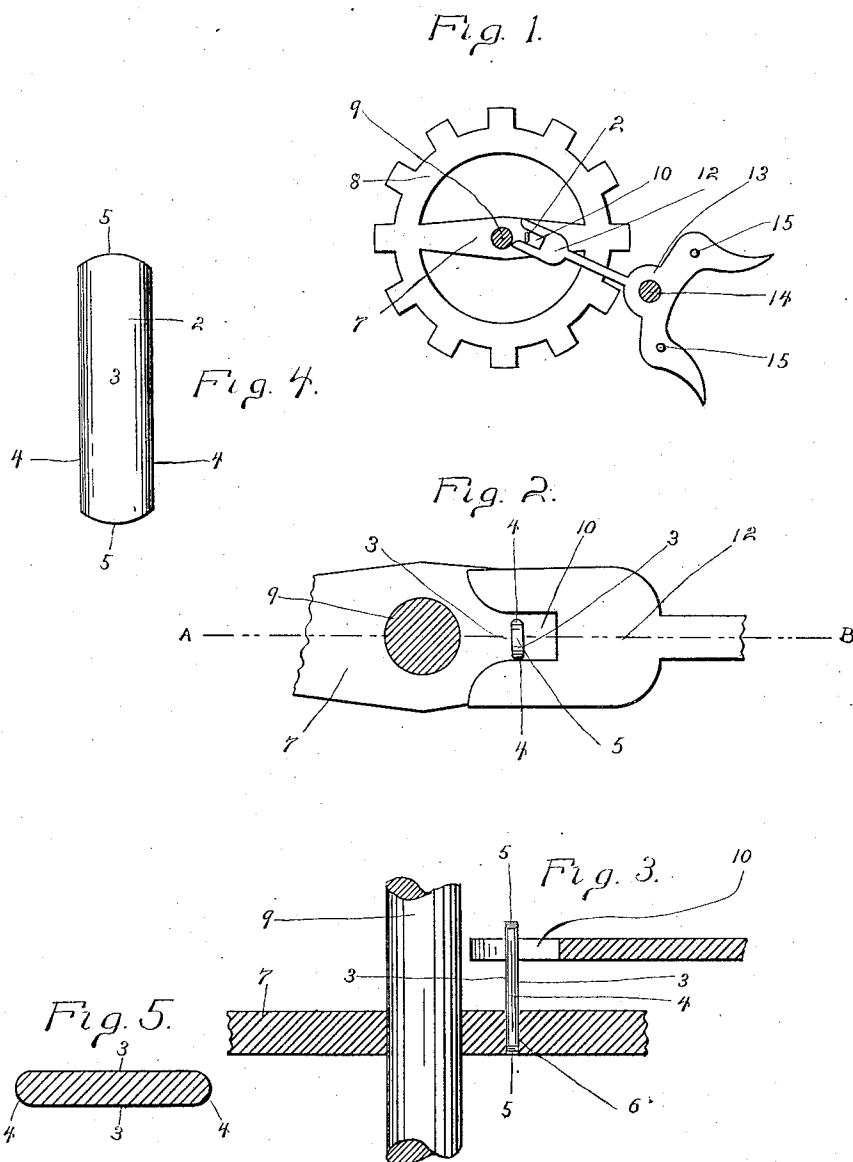


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 ESCAPEMENT MECHANISM FOR WATCHES AND MARINE CLOCKS.
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Patented July 23, 1912.



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UNITED STATES PATENT OFFICE.

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ESCAPEMENT MECHANISM FOR WATCHES AND MARINE CLOCKS.

1,033,465.

Specification of Letters Patent.

Patented July 23, 1912.

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To all whom it may concern:

Be it known that I, WILSON E. PORTER, a citizen of the United States, residing at New Haven, in the county of New Haven and State of Connecticut, have invented a new and useful Improvement in Escapement Mechanism for Watches and Marine Clocks; and I do hereby declare the following, when taken in connection with the accompanying drawings and the letters of reference marked thereon, to be a full, clear, and exact description of the same, and which said drawings constitute part of this specification, and represent, in—

Figure 1 a plan view of a balance-wheel and escapement-lever, the former being provided with a flattened wire impulse-pin constructed in accordance with my invention. Fig. 2 a view on a larger scale showing the pin in the fork of the lever. Fig. 3 a broken view in vertical section on the line *a-b* of Fig. 2. Fig. 4 a detached plan view of the pin. Fig. 5 a view of the pin in transverse section.

Formerly the escapements of watches were provided with impulse-pins of ruby, sapphire, garnet, agate and glass installed by means of shellac after having been first ground into flattened or oval form, but such pins were far too expensive and delicate to be used in the cheap watches now made in such large quantities, and some substitute had to be found for them. Recently metal impulse-pins made by cutting up round wire into suitable lengths have been employed. The round wire itself, of course, is inexpensive, but the manual pointing of the wire to permit the pins to be driven is a delicate and somewhat expensive operation. Moreover round pins are objectionable on account of the expense of adjusting the escapements in which they are used with the accuracy required to insure the clearance of the pins from the curved impulse-faces of the impulse slots of the forks of the escapement levers when the pins enter the slots. This delicate adjustment has not only to be made in the first place, but maintained to make the watch run and secure good results. To obviate the necessity of the accurate adjustments required, as described, with round pins, such pins were filed away into half round form after being driven into the balance-wheel, whereby although expense of adjustment was saved, additional expense

was involved in filing into flattened form those portions of the pins entering the impulse slots of the escapement-lever forks. In this connection it should be made clear that a full round pin while not more expensive or difficult to install requires that the entire escapement of which it is a feature, shall be adjusted with far more accuracy, and maintained in far more accurate adjustment, than a pin having that portion of it entering the slot in the fork flattened to insure ample clearance.

The object of my present invention is to produce at a low cost for manufacture a wire impulse-pin having all the functional advantages of flattened or oval stone pins and of those wire pins which are milled after they are mounted, and yet made complete before being set, and no more expensive to set than any other wire pin.

With these ends in view my invention consists in an impulse-pin having certain details of construction as will be hereinafter described and pointed out in the claims.

In carrying out my invention as herein shown, I employ a straight, wire impulse-pin 2 having flat opposite faces 3, symmetrically rounded edges 4, and convex ends 5, such pins being produced by rolling and thus flattening round drawn wire, which is then cut up into pins having rounded ends so that either end may be conveniently inserted into a hole 6 formed for the reception of the pin in the cross-arm 7 of an ordinary balance-wheel 8 which is mounted upon a balance staff 9, the said pin being located flatwise or at a right angle to the longitudinal axis of the arm 7. As thus positioned the rounded edges of the pin co-act with the straight, parallel opposite walls of the inner end of the impulse-slot 10 which is formed in the fork 12 of the escapement-lever 13 which is mounted, as usual, upon a verge-arbor 14, and furnished with escapement-pins 15 co-acting with the teeth of the escapement-wheel which is not shown. The outer ends of the side walls of the slot 10 are symmetrically curved outward away from each other, but the curved portions of these walls do not ordinarily co-act with the rounded edges 4 of the impulse-pin 2.

I claim:—

In an escapement mechanism for watches and marine clocks, the combination with a

balance-wheel having a cross-arm, of an
escapement-lever having a fork formed with
an impulse-slot the inner portions of the side
walls of which are straight and parallel,
5 and a straight, flat wire impulse-pin hav-
ing flat faces and symmetrically rounded
edges, and convexed or rounded ends, the
said pin being driven into the said cross-
arm with its flat faces at a right angle to
10 the longitudinal axis thereof, whereby its
symmetrically rounded edges are in position

for co-action with the straight opposite
walls of the impulse-slot in the escapement-
lever.

In testimony whereof, I have signed this 15
specification in the presence of two subscrib-
ing witnesses.

WILSON E. PORTER.

Witnesses:

FREDERIC C. EARLE,
CLARA L. WEED.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents,
Washington, D. C."