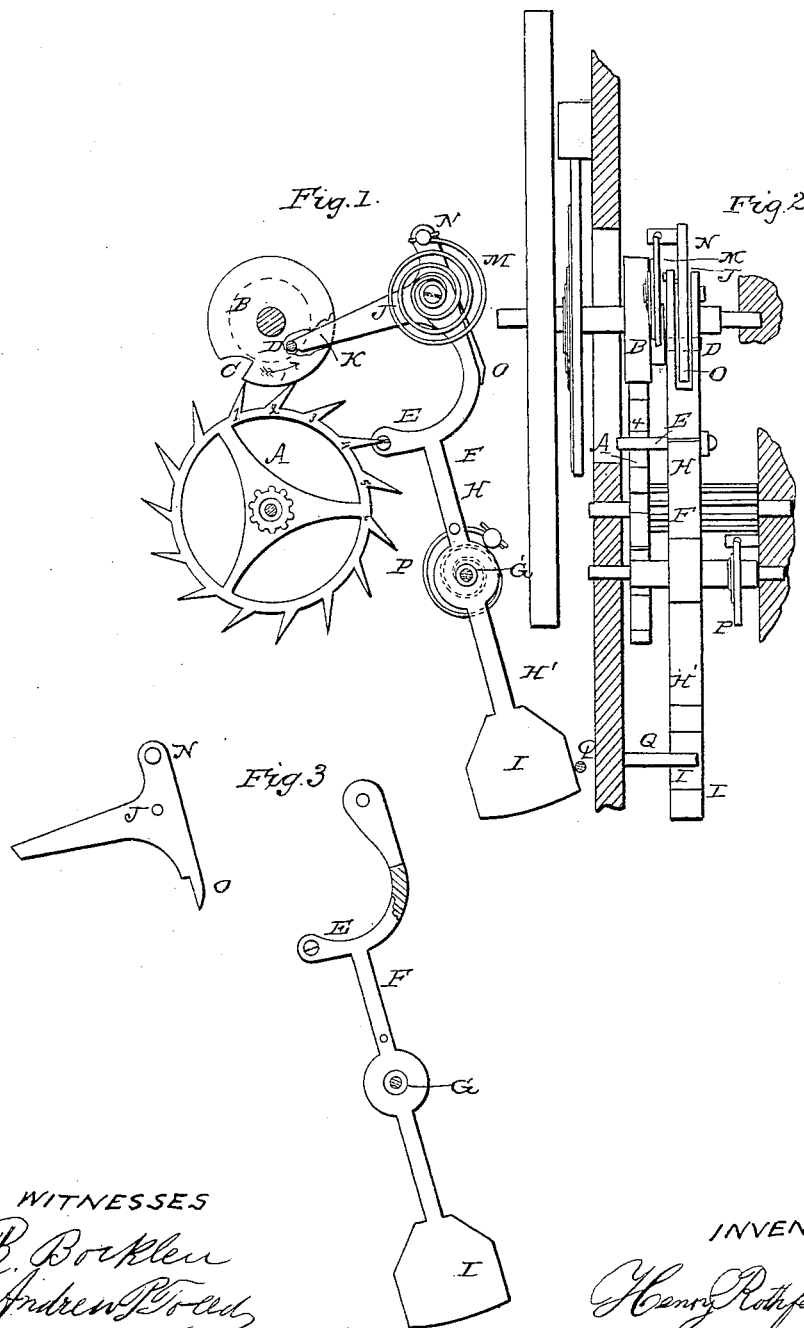


H. ROTHFELDER.
Chronometer Escapement.

No. 48,726.

Patented July 11, 1865.



WITNESSES
R. Borklen
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UNITED STATES PATENT OFFICE.

HENRY ROTHFELDER, OF NEW YORK, N. Y.

IMPROVEMENT IN CHRONOMETER-ESCAPEMENTS.

Specification forming part of Letters Patent No. 48,726, dated July 11, 1865.

To all whom it may concern:

Be it known that I, HENRY ROTHFELDER, of the city, county, and State of New York, have invented certain new and useful Improvements in Detached Escapements for Chronometers; and I hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, in which—

Figure 1 represents a top view of my improvements; Fig. 2, a side view of the same. Fig. 3 are detached views of parts forming the locking lever or detent.

Similar letters of reference indicate corresponding parts in the several figures.

The nature of my said invention consists in a locking-lever formed with a jointed spring-arm, acted upon by the pallet or change-pin of the balance to move the said lever, and the disengaging-detent, that allows the scape-wheel to move and give an impulse to the balance by acting upon the notched roller or pallet of the balance.

To enable others skilled in the art to make and use my invention, I will proceed to describe its construction and operation.

A represents the scape-wheel, which is of ordinary construction, with undercut teeth 1 2 3 4 5.

B is the main pallet or scape-roller, fixed to the arbor of the balance and provided with the ordinary notch C, against the side of which the teeth 1 2 3 4 of the scape-wheel A strike as they pass it.

D is the ordinary lifting-pallet or charge-pin, fixed to the scape-roller B, for the purpose of disengaging the detent-pin E of the locking-lever F from the teeth of the scape-wheel A. This locking-lever F has its center of motion G, and has one arm, H, extending toward the scape-wheel and scape-roller and carrying the detent-pin E, and another arm, H', extending in opposite direction and terminating with counterbalance-head I. To the end of the locking-lever F is attached a three-armed lever, J, the central arm, K, of the same being pointed, and extending nearly at right angles to the locking-lever F and tangentially toward the balance-arbor.

M is a coiled spring attached to the locking-

lever F and taking hold of the arm N of the lever J, and thereby keeping the end of the arm O against the side of the locking-lever F, in a manner that when the lifting-pallet D presses against the upper side of the arm K of the lever J toward the scape-wheel A the arm K will yield and allow the lifting-pallet to pass by without disturbing the locking-lever F; but when the lifting-pallet is moving in opposite direction, and from the scape-wheel A, it will strike against the end of the arm K and will move the locking-lever F off from it until the said lifting-pallet is allowed to pass by.

P is a coiled spring, pressing the locking-lever F toward the scape-wheel against the stop-pin Q.

The operation, in which these parts act upon one another, is as follows: The locking-lever F being at rest against the stop Q, the tooth 4 of the scape-wheel resting against the detent-pin E, the balance, however, being in motion in the direction shown by arrow 1, the lifting-pallet D, acting against the end of the arm K of the lever J, moving the locking-lever F, and thus its detent-pin E, off from the tooth 4 and liberating the scape-wheel A, the tooth 1 of the same falling in with the side of the notch C of the main pallet and giving an impulse to the balance. Before the tooth 1 escapes from the notch C of the main pallet the lifting-pallet D had passed the point of the lever J and the locking-lever F is again at rest, so that when the tooth 1 escapes the notch C of the main pallet the scape-wheel is locked again by the tooth 3 falling upon the detent-pin E.

From the foregoing it will be seen that by this construction and arrangement of the locking-lever and lifting-pallet the friction resulting from forcing off the point of the lever J to allow the lifting-pallet to pass by is greatly reduced, and the action of the locking-lever against the lifting-pallet is controlled to a great precision, and it is evident that in the practical manufacture of this escapement men who are less competent can produce a more accurate time-keeper than they can with those escapements hitherto known or used.

I do not claim the roller or pallet B, change-

pin D, notch C, or scape-wheel A, as these are substantially the same as have been employed. Neither do I claim acting upon the detent or escapement by the change-pin D. Neither do I claim a lever for an escapement yielding in one direction and rigid in the other; but

What I claim, and desire to secure by Letters Patent, is—

The arm J, jointed to the lever F and provided with a spring, as set forth, in combination with the change-pin D, detent E, and escapement, as specified.

HENRY ROTHFELDER.

Witnesses:

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