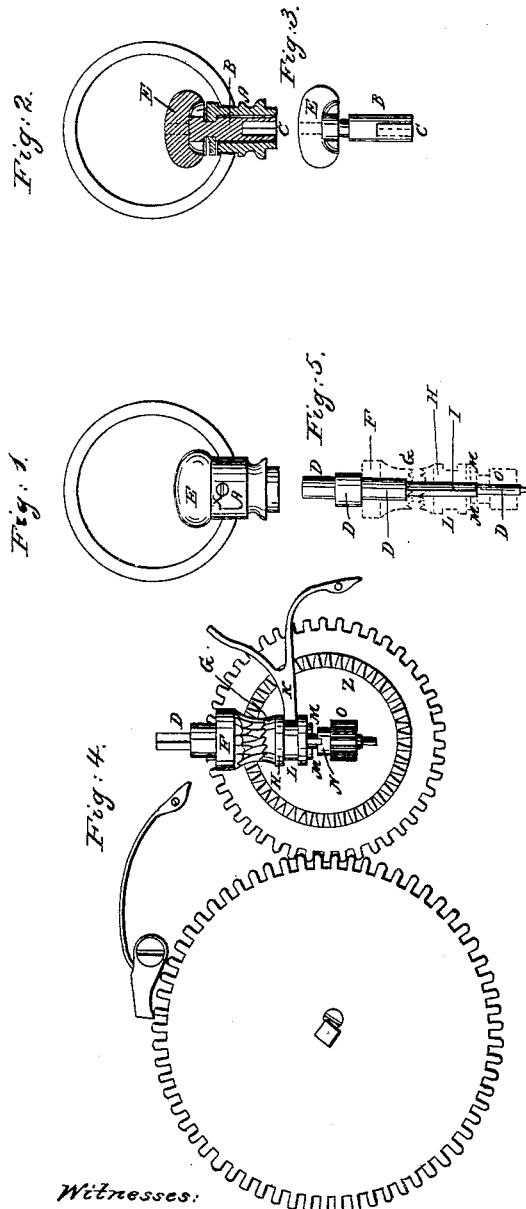


F. A. LANGE.

Watch.

No. 54,831.

Patented May 15, 1866.



Witnesses:

James Adams.
Jury R. K. H. H. H.

Inventor:

Ferd. Adolph Lange

UNITED STATES PATENT OFFICE.

F. A. LANGE, OF GLASHÜTTE, SAXONY.

IMPROVEMENT IN WATCHES.

Specification forming part of Letters Patent No. 54,831, dated May 15, 1866.

To all whom it may concern:

Be it known that I, FERD. ADOLPH LANGE, of Glashütte, (near Dresden,) Saxony, have invented a new and useful Mechanism for Winding and Setting Watches; and I do declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings, making a part of this specification, in which—

Figure 1 is an elevation showing the stem and key. Fig. 2 is a transverse section of the same. Fig. 3 is a transverse section of the key removed from the stem. Fig. 4 is an elevation of the arbor and its wheels. Fig. 5 is a transverse section of the same.

Fitting into the stem A so that it will easily turn is the key B, which grasps with its barrel C the arbor D, which is revolved by turning the cap E of the key. This key E acts also as the pusher for the back spring of the case and is easily removed by taking out its screw X, and which allows the works of the watch to be taken from the case without taking them apart.

The arbor D is in its sections of different diameters and shapes—round and square—so as to accommodate the shape and action of its wheels. First upon the arbor is the concave contrate-wheel F, with beveled cogs or flanges, which are not only secured at their base, but are firmly incorporated with the solid head of the wheel. The lower face of this wheel F is provided with ratchet-teeth, which interlock and work with similar teeth on the upper face of the ratchet-cylinder H, which is situated on the square section I of the arbor, and is movable up and down by the spring-lever K, which fits into its groove L. The lower face of this ratchet-cylinder H is provided with teeth or cleats M, which will fit into the slot N of the pinion O. This pinion O revolves loosely on the arbor D and constantly with the hands, except in the act of setting the watch. It is always ready for the grasp of the ratchet-cylinder H, which it does in such a firm manner that the hands do not oscillate with that dead motion common to other constructions.

In winding the watch the arbor D is revolved by the key B. The concave contrate-wheel F and the ratchet-cylinder H, being interlocked

by their ratchet-crowns G, act as one solid ratchet-wheel in engaging and revolving the crown-wheel Z, attached to the watch-spring, the teeth of which exactly conform and fit into the bevel-cogs of the concave contrate-wheel F.

In setting the watch the ratchet-cylinder H is disengaged from the concave contrate-wheel F by the spring-lever K, and is slipped down the arbor until it engages the pinion O, securing full control of the hands. The concave contrate-wheel F and the pinion O are powerless and are not revolved by the arbor in winding or setting the watch unless they are engaged and operating with the ratchet-cylinder H.

My invention is susceptible of the most durable construction.

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

1. The removable key E, inserted within the pendant of a watch, and retained therein substantially in the manner described, in combination with the winding mechanism of the watch, when constructed and operating in the manner and for the purposes as set forth.

2. The concave contrate-wheel F upon the arbor D and gearing with the crown-wheel Z, said contrate wheel having its teeth constructed in the peculiar manner described.

3. Providing the ratchet-cylinder H upon the arbor D, and gearing with contrate-wheel F, with a projection, M, upon its lower surface, which enters a slot or recess upon the face of the pinion O and operates in the manner and for the purposes set forth.

4. The loose pinion O upon the shaft D, in connection with the minute-wheel, when provided with a recess, N, upon its face, and constructed and operating in the manner and for the purpose as set forth.

5. The combination of the removable key B, arbor D, concave contrate-wheel F, crown-wheel Z, ratchet-cylinder H, with its spring K, and the pinion O, when constructed and operating substantially in the manner and for the purpose as set forth.

In witness whereof I have hereunto subscribed my name.

FERD. ADOLPH LANGE.

Witnesses:

HEINRICH ADAM,
GEORG RAKSTROSS.