

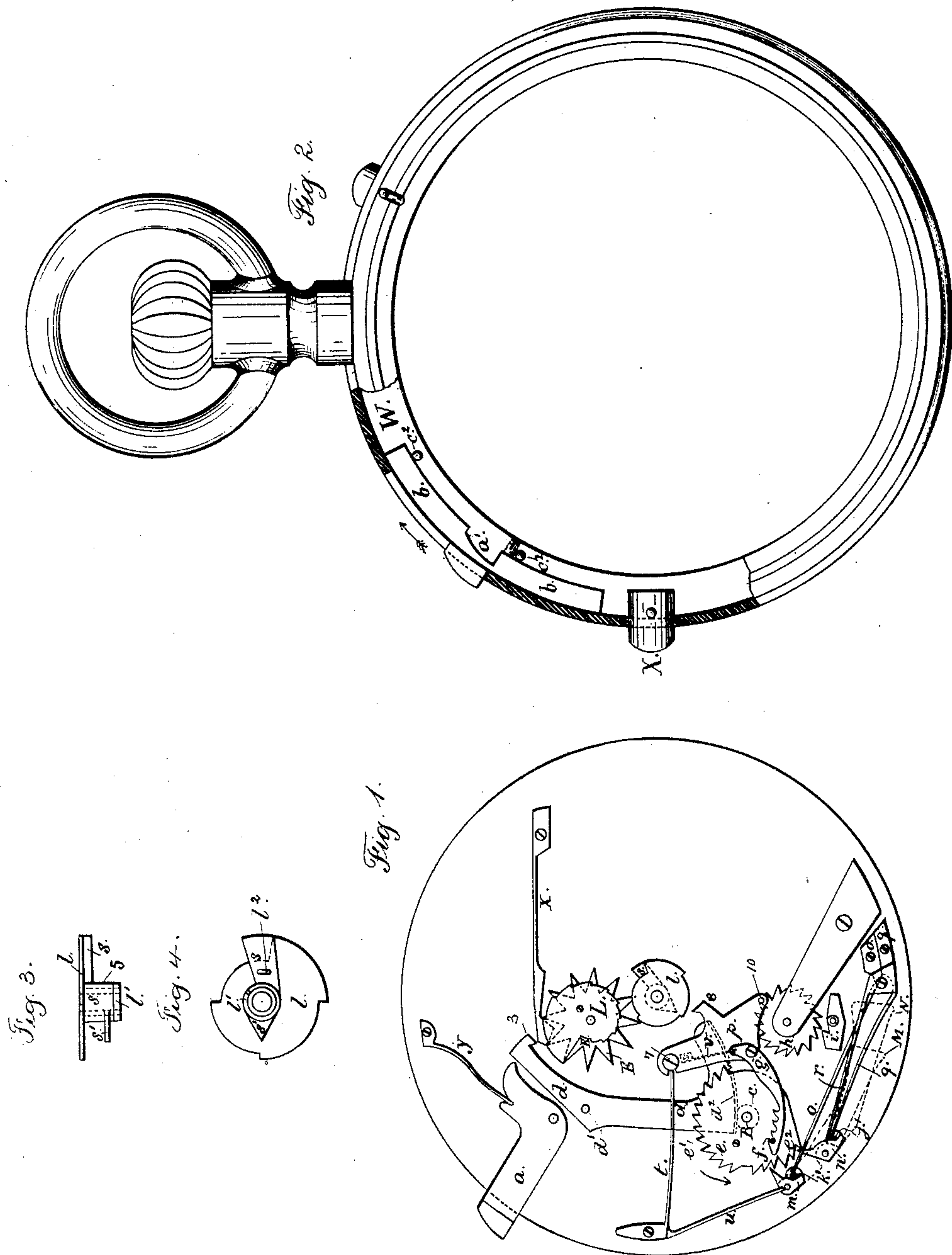
(No Model.)

W. E. HUGUENIN.

REPEATING MOVEMENT FOR WATCHES.

No. 256,218.

Patented Apr. 11, 1882.



Witness

Chas. H. Smith  
J. Hail

Inventor

Wm. E. Huguenin  
per Lemuel W. Serrell  
attys

# UNITED STATES PATENT OFFICE.

WILLIAMS E. HUGUENIN, OF LOCLE, SWITZERLAND.

## REPEATING-MOVEMENT FOR WATCHES.

SPECIFICATION forming part of Letters Patent No. 256,218, dated April 11, 1882.

Application filed August 27, 1881. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAMS EDOUARD HUGUENIN, of Locle, in the canton of Neuchâtel, Switzerland, have invented certain new and useful Improvements in Watches, of which the following is a specification.

The object of my invention is to simplify and cheapen the construction of that class of watches known as "repeaters;" and this I accomplish by lessening the number of parts and providing such construction and arrangement of the mechanism that the parts thereof may be cut out by dies or punches from sheet metal, thereby lessening the cost of manufacture and rendering parts interchangeable.

In the drawings, Figure 1 is a view representing the repeating mechanism complete. Fig. 2 represents the ring of the watch and the sliding bolt for operating the repeater. Fig. 3 is an edge view of the quarters-snail and of the surprise, and Fig. 4 is an elevation of the same.

The sliding bolt or push-plate *b*, for setting the repeater in action, is made as a thin plate within the ring *w* of the watch-case, and is guided by said ring and by the pins *c*<sup>2</sup> *c*<sup>2</sup>. It has a finger-piece projecting through a slot in said ring *w*, and a notch at *a'* to receive the end of the lever *a*, which acts upon the lever *d* when the push-plate is moved to sound the repeater.

The hour-snail *L*, provided with twelve steps or offsets in its periphery, and the star-wheel *E* upon the arbor of the hour-snail, are of usual character.

*d* is the lever, pivoted at *d'*, and provided with teeth at *d*<sup>2</sup>, meshing with a pinion, *c*, on the arbor of a spring-barrel, *B*, specially provided for the repeating mechanism, and said lever *d* has a projection, 3, that is adjacent to the hour-snail *L*.

Upon the arbor of a spring-barrel, *B*, there is a disk, *e*, with ratchet-teeth at *e'* and *e*<sup>2</sup>, the teeth at *e'* acting upon the hammer *m* to indicate the hours, and the teeth *e*<sup>2</sup> acting upon the hammer *n* to indicate the quarter-hours.

When it is desired to sound the repeater the sliding bolt *b* is moved in the direction of the arrow, Fig. 1, and by means of the intermediate lever, *a*, the lever *d* is moved and the projection 3 brought into contact with one of the

offsets of the hour-snail. At the same time the lever *d* by its teeth *d*<sup>2</sup> partially revolves the pinion *c* and disk *e* and winds up the spring of the barrel *B* the amount necessary for returning the parts to their normal positions and operating the hammers. Thus, if the arm of the lever *d* comes against the offset of the hour-snail that indicates two o'clock, the disk *e* will be turned backward only sufficient to present two teeth to the hammer *m* upon the forward movement of the disk *e*. Consequently the hammer *m* will be operated twice and indicate two o'clock.

The quarters-snail *l* is upon the arbor of the minute-wheel, and consequently makes one revolution each hour, and upon the cannon of this snail is the piece usually termed the "surprise," which consists of the sleeve 5, finger *s'*, and plate *s*, the periphery of the latter being concentric with the outermost offset of the snail *l*. The surprise is kept upon the cannon of the snail *l* by a ring, *l'*, at its inner end, and it moves with the snail *l* by the pin *l*<sup>2</sup> in a slot of *s*. At each turn of the snail *l* the finger *s'* engages with a tooth of the star-wheel *E* and moves it one tooth, thereby setting the hour-snail properly. As the finger *s'* separates from the tooth of the star-wheel the advancing tooth of said wheel strikes the finger *s'* suddenly by the impulse given to the wheel *E* by the double-inclined tooth of the spring *x*, that had been lifted by the passage of one tooth, and then passes between the next two teeth, and the surprise is turned to the extent allowed by the pin *l*<sup>2</sup> moving in the slot in *s*. This brings the periphery of the surprise as a prolongation of the outermost offset of the snail *l*, and prevents the quarter-piece *p*, next described, striking the offset that indicates the first quarter until after the minute-hand has passed XII.

The quarter-piece *p* is pivoted at 7, and has a finger at 8 adjacent to the quarters-snail *l*.

*g* is a lever pivoted to the quarter-piece *p*, and provided with notches in its long arm. *f* is a pin upon the disk *e*.

When the lever *d* is moved, as before described, and the pinion *c* turned to wind up the spring of the barrel *B*, and also to turn the disk *e*, the movement of the disk *e* causes the pin *f* to move out of the notch of *g*, releasing the latter, and the spring *t* immediately



moves the quarters-piece *p* and the finger 8 strikes against the part of the quarters-snail adjacent to it. This movement of the quarters-piece *p* causes the lever *g* to assume a position  
 5 dependent upon the offset of the snail *l*, that the finger 8 came into contact with, so that the pin *f* will enter the proper notch in *g* upon the return movement of *e*. When the bolt *b*  
 10 is released the spring of the barrel B uncoils, and the disk *e* is turned forward, and the teeth at *e'* operate the hammer *m*, as before described, to strike the hour. During the forward move-  
 15 ment of *e* the pin *f* enters the proper notch in *g* and draws the quarter-piece away from the snail *l* until a pin, 10, upon the quarter-piece *p*, enters the teeth of the anchor-wheel *h*, that is revolved by gearing from the spring-barrel B, and stops the rotation of B, and thereby prevents the disk being turned too far. It is  
 20 to be understood that the pin *f* enters the first, second, or third notch in *g*, according to which offset the finger 8 strikes. Thus, if it strikes the offset indicating the second quarter of the hour, the pin *f* will enter the second notch in  
 25 *g* and the hammer *n* will be acted upon by two of the teeth *e*, after which the revolution of *e* will be stopped by the pin 10 entering the teeth of the anchor-wheel *h*.

The gearing between the spring-barrel and  
 30 the anchor-wheel may be of any desired character. It is not shown in the drawings.

I do not claim broadly mechanism for winding up the spring of the repeater only the amount necessary to indicate the particular  
 35 hour, as this has before been done.

I claim as my invention—

1. The combination, with the repeating mechanism, of the sliding bolt *b* within the ring *w*, and guided by said ring and by the pins *c*<sup>2</sup> *c*<sup>2</sup>, and provided with a finger-piece pro- 40  
 jecting through a slot in the ring *w*, and with a notch to receive the end of a lever, substantially as and for the purposes set forth.

2. In a repeating-watch, the toothed lever *d*, pinion *c*, spring-barrel B, and disk *e*, in com- 45  
 bination with the hour-snail L and hammer for striking the hour, substantially as and for the purposes specified.

3. The toothed lever *d*, hour-snail L, pinion *c*, spring-barrel B, disk *e*, and pin *f*, in combi- 50  
 nation with the quarters-piece *p*, notched lever *g*, and quarters-snail *l*, substantially as and for the purposes specified.

4. In a repeating-watch, the combination of the toothed lever *d*, hour-snail L, spring-barrel, 55  
 and pinion *c*, substantially as and for the purposes specified.

5. In a repeating-watch, in combination with the star-wheel E and quarters-snail *l*, the sur- 60  
 prise, made as a plate, *s*, upon a sleeve surrounding the cannon of the quarters-snail, and with a finger extending from said sleeve for acting upon the star-wheel of the hour-snail, and with a pin upon the snail entering a slot  
 65 in *s*, substantially as specified.

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

WILLIAMS EDOUARD HUGUENIN.

Witnesses:

T. DURAT,  
 ELMER SCHNEIDER.