

(No Model.)

2 Sheets—Sheet 1.

C. MORLET.
REPEATING WATCH.

No. 402,343.

Patented Apr. 30, 1889.

Fig. 1.

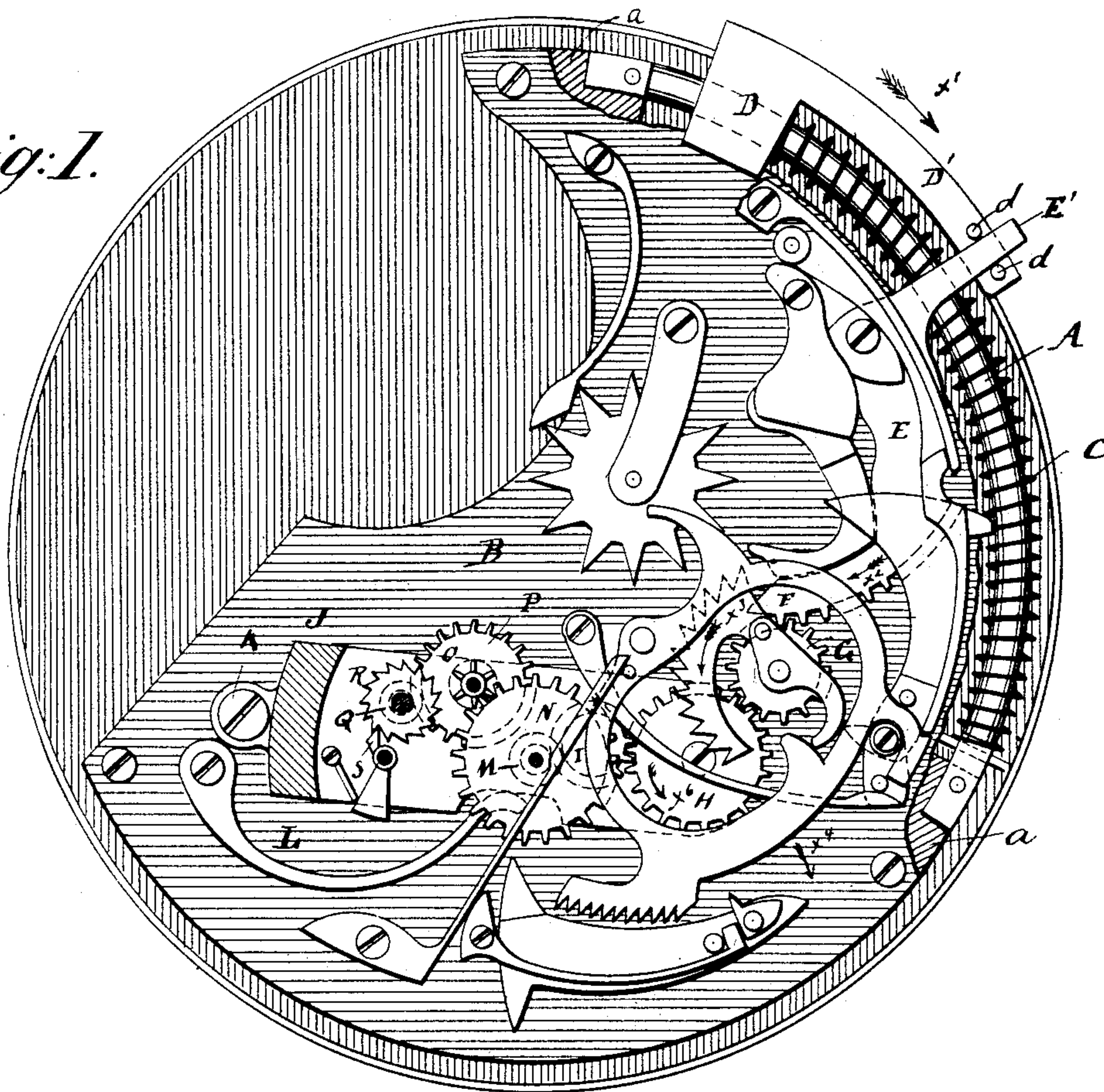


Fig. 2.

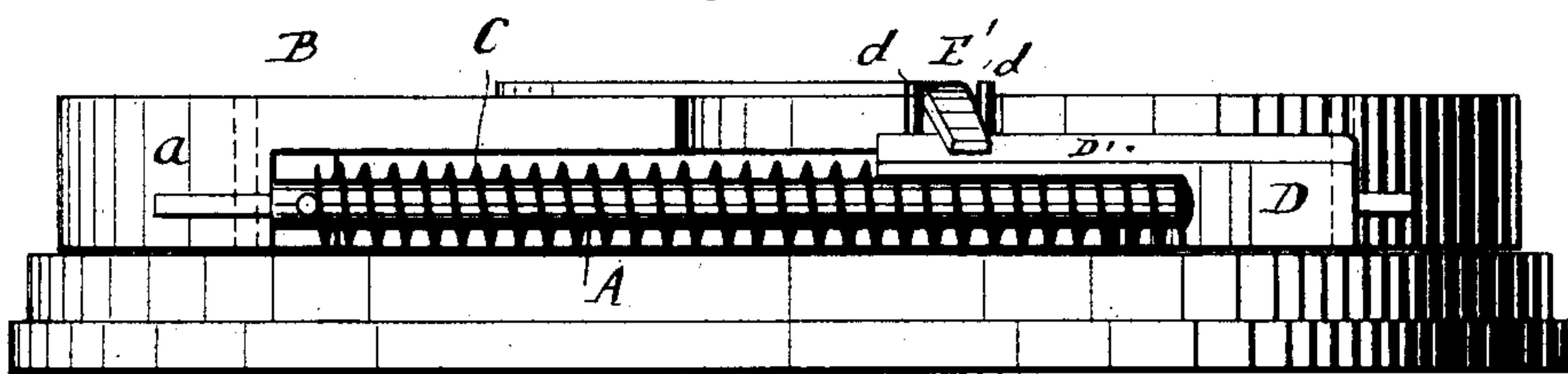
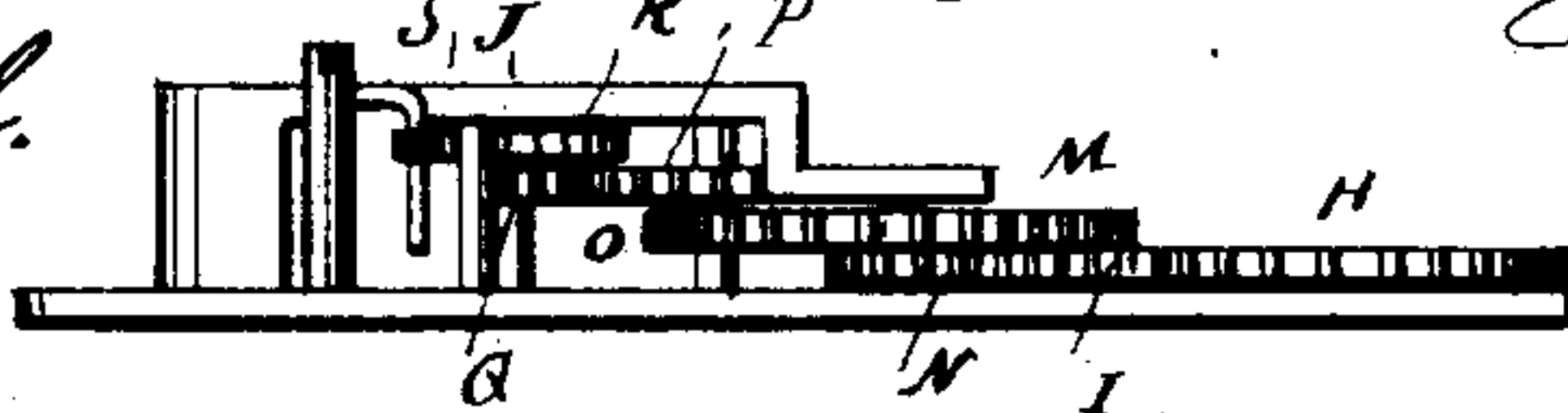


Fig. 3.

WITNESSES:

A. Schuhl.

Carl Kuy



INVENTOR,

Charles Morlet

BY

Loepel & Raegen

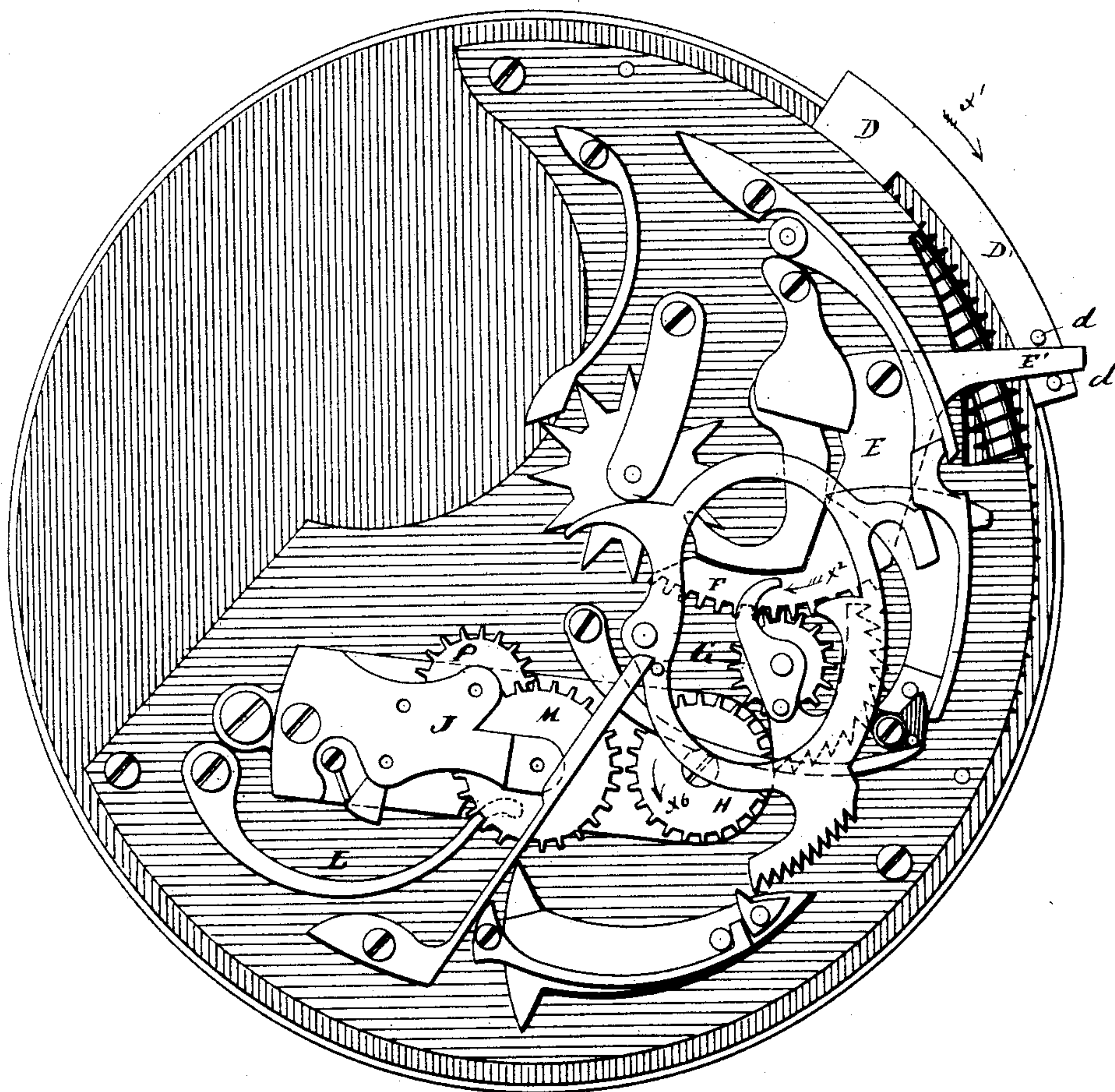
ATTORNEYS.

2 Sheets—Sheet 2.

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Patented Apr. 30, 1889.

Fig: 4.



A. Schehl.
Carl Karp

INVENTOR.

INVENTOR.
Charles Mallet
BY *Garnett & Regener*
ATTORNEYS.

UNITED STATES PATENT OFFICE.

CHARLES MORLET, OF HOBOKEN, NEW JERSEY, ASSIGNOR OF ONE-HALF TO
PROSPER NORDMAN, OF NEW YORK, N. Y.

REPEATING-WATCH.

SPECIFICATION forming part of Letters Patent No. 402,343, dated April 30, 1889.

Application filed September 12, 1888. Serial No. 285,182. (No model.)

To all whom it may concern:

Be it known that I, CHARLES MORLET, of Hoboken, in the county of Hudson and State of New Jersey, have invented certain new and
5 useful Improvements in Repeating-Watches, of which the following is a specification.

This invention relates to an improved repeating attachment to watches; and the object of my invention is to provide a simple,
10 strong, and durable motor for operating the repeating attachment.

A further object of my invention is to provide a simple moderating-gear which can be easily applied; and another object of my invention is to arrange and provide the entire
15 repeating mechanism and its moderating-gear upon the face of the top plate in such a manner that no parts of the rotating mechanism extend to the bottom plate.

20 The invention consists in a repeating-watch having the moderating-gear mounted on an independent bridge on the top plate.

The invention further consists in a motor for the repeating-watch mechanism composed
25 of a helical spring in the shape of a tube.

The invention also consists in the construction and combination of parts and details, as will be fully described hereinafter, and finally
30 pointed out in the claims.

In the accompanying drawings, Figure 1 is a face view of my improved repeating mechanism for watches, parts being broken out and others in section. Fig. 2 is a side view showing the location and arrangement of the motor. Fig. 3 is a side view of the bridge of the
35 retarding-gear. Fig. 4 is a face view of the repeating mechanism, the parts having different positions.

Similar letters of reference indicate corresponding parts.
40

The mechanism for transmitting motion from the repeater-mechanism motor to the hammers is of the old and well-known construction, and does not form part of this invention.
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A rod, A, which is either a quadrant or a segment of a circle, is secured at its ends in lugs *a a*, formed on the under side of the top plate, B, or on any other plate of the watch.
50 Said rod A is surrounded by a helical spring,

C, which thus has the shape of a curved tube, one end of which spring rests against a pin at one end of the rod and the other end of which spring rests against a slide, D, on said rod.
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The slide can be moved toward that end of the rod at which the other end of the spring is located, whereby the spring is compressed. The slide D is provided with an arm, D', from which two pins, *d*, project; or, in place of the pins *d*, a fork is formed in any other suitable manner on said lug or the arm of the same. On the top of the top plate, B, an angle-lever, E, is pivoted, which is provided with an arm, E', that passes between the pins *d* on the arm D' of the slide D. At the other end the lever E is provided with a segmental rack, F, engaging the pinion G, from which the curved ratchet-bars for operating the hammers in the usual manner are operated.
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The pinion G engages the cog-wheel H, which is pivoted on the end of the lower shank of a U-shaped bridge, J, pivoted at its opposite end on the upper surface of the top plate, B, by a screw or pivot, K, so as to adapt said bridge to oscillate, with the pivot or screw K as center, on upper surface of the top plate, B. A spring, L, is secured at one end of the top plate, and the other end bears against the rim of the swinging bridge J, thereby keeping the cog-wheel H engaged with the pinion G. Between the shanks of said bridge J the wheels of the moderating-gear are mounted, which may be of any well-known construction.
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In the watch shown the wheel H engages an intermediate cog-wheel, I, which in turn engages the pinion M, mounted on the same shaft with the cog-wheel N, engaging the pinion O on the same shaft with the cog-wheel P, said cog-wheel P engaging the pinion Q on the same shaft with the ratchet-wheel R, with which the escapement S engages. Said escapement and the shaft on which the pinions and cog-wheels I M N O P Q R are mounted
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are all pivoted in the bridge J. The entire moderating-gear being on a separate bridge and entirely independent of the remaining repeating mechanism, it can be readily removed without disturbing or inter-
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rupting the remaining parts of the repeating mechanism.

The operation is as follows: By moving the slide in the direction of the arrow x' , Fig. 1, the spring C is compressed and the rack F is moved in the direction of the arrow x^2 and rotates the pinion G in the direction of the arrow x^3 . The pinion G will not rotate the wheel H, but will press or swing the entire bridge J and the wheels thereon in the direction of the arrow x^4 , so that the wheel H is out of the way, and thus does not interfere with rapidly compressing the spring C for action. When the slide D has been moved as far as possible in the direction of the arrow x' , the proper springs and catches provided are released and the parts of the repeating mechanism assume the positions shown in Fig. 4 ready for striking. The slide D is now released, and the spring C, expanding, moves said slide in the inverse direction of the arrow x' , whereby the rack F is moved in the inverse direction of the arrow x^2 and operates the striking mechanism in the usual manner. The pinion G is now rotated in the inverse direction of the arrow x^3 and turns the wheel H in the same direction in which the spring L acts. The result is that the pinion G now rotates the wheel H in the direction of the arrow x^6 , and from said wheel H the moderating-gear is operated in the usual manner until the spring C has expanded and the slide D has been moved back to its initial position. The helical-spring motor is much more durable, simpler, and stronger than a barrel or straight spring motor used heretofore and not so apt to get out of order.

The further advantage is that it occupies very little space, and that it is located in a part of the watch and in space which is not otherwise utilized, thus tending to reduce the size of the watch and case.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. A repeating-watch having its moderat-

ing-gear mounted on a movable bridge, substantially as set forth.

2. A repeating-watch having its moderating-gear mounted on a bridge pivoted to oscillate on a plate of the works, substantially as set forth.

3. A repeating-watch having its moderating-gear mounted in a bridge pivoted at one end to oscillate on one of the plates of the works, the wheels at the opposite end of the bridge engaging one of the wheels driven by the motor of the repeating-gear, substantially as set forth.

4. In a repeating-watch, the combination, with the repeating-gear, of a moderating-gear mounted in an oscillating bridge on a plate of the works and a spring acting on said bridge and serving to keep one of the wheels on the oscillating bridge engaged with one of the wheels operated by the motor of the repeating-gear, substantially as set forth.

5. A repeating-watch having a motor for the repeating mechanism, composed of a helical spring surrounding a rod, substantially as set forth.

6. A repeating-watch having a motor for the repeating mechanism, composed of a helical spring surrounding a curved rod at the rim of the movement, substantially as set forth.

7. In a repeating-watch, the combination, with one of the plates, of a curved rod held at the rim of the same, a helical spring surrounding said rod, a slide on said rod, on which slide the spring can act, a rocking lever operated from said slide, and gearing for transmitting motion from said rocking lever to the repeating mechanism, substantially as set forth.

In testimony that I claim the foregoing as my invention I have signed my name in presence of two subscribing witnesses.

CHARLES MORLET.

Witnesses:

OSCAR F. GUNZ,
JOHN A. STRALEY.