(No Model.) 2 Sheets—Sheet 1.

L. PIGUET.

STEM WINDING MUSICAL WATCH.

No. 267,104. Patented Nov. 7, 1882.

Fig. 1.

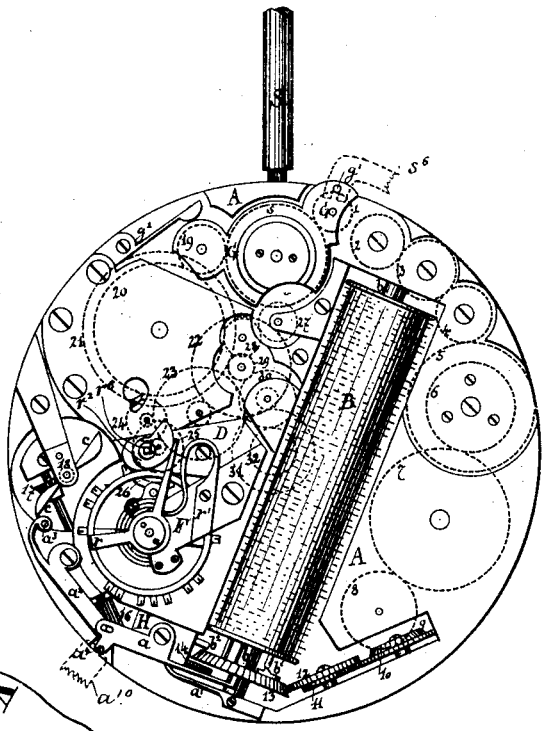
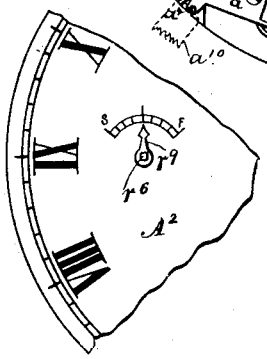


Fig. 5



Witnesses

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(No Model.) 2 Sheets—Sheet 2.

L. PIGUET.

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No. 267,104. Patented Nov. 7, 1882.

Fig. 3.

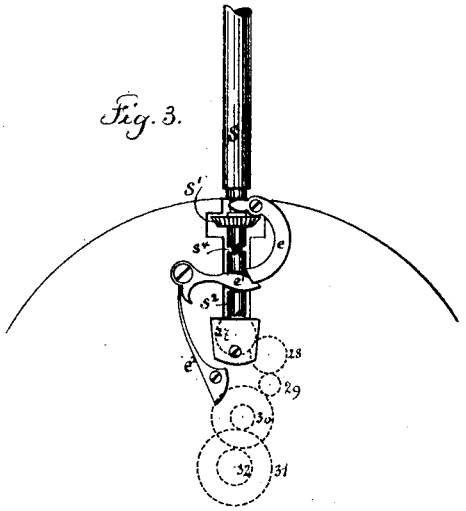


Fig. 4.

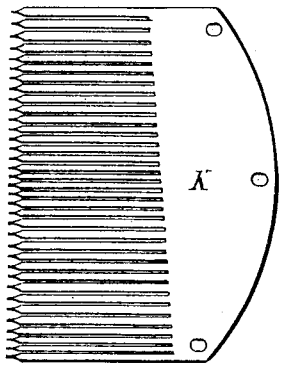
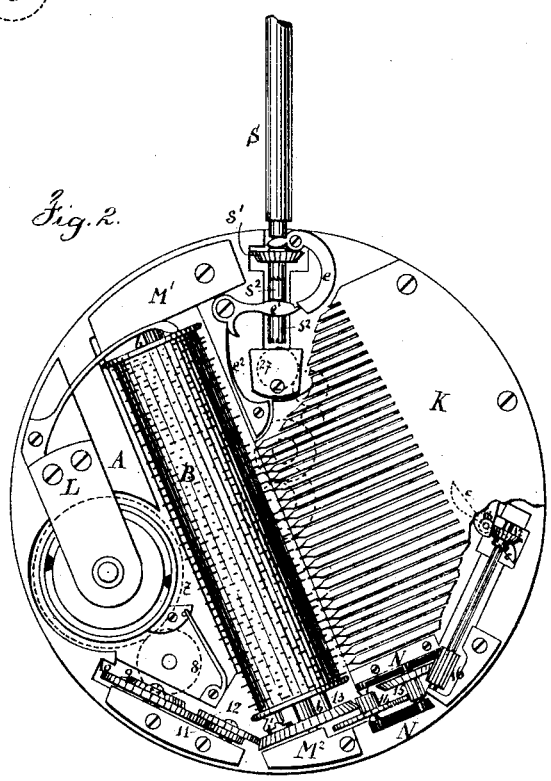


Fig. 2.



Witnesses

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UNITED STATES PATENT OFFICE.

LÉON PIGUET, OF GENEVA, SWITZERLAND.

STEM-WINDING MUSICAL WATCH.

SPECIFICATION forming part of Letters Patent No. 267,104, dated November 7, 1882.

Application filed June 5, 1882. (No model.) Patented in France November 8, 1881, No. 144,966.

To all whom it may concern:

Be it known that I, LÉON PIGUET, a citizen of Switzerland, residing at Geneva, in Switzerland, have invented a new and useful Improvement in Keyless Musical Watches, of which the following is a specification.

Letters Patent for this invention have been granted to me in the Republic of France on the 8th day of November, 1881, No. 144,966.

Attempts have been made at different times to manufacture watches by combining with the mechanism of the watch a disk provided with small points to take the place of the cylinder of the ordinary music-box. This disk occupied such a position in the watch that it was necessary to place the plate of musical tongues parallel to the pillar-plate, and to provide on the under side of each tongue a conical projection, against which the points of the disk hit, in order to lift the tongues and make them resound. The result was a torsion of the sonorous tongues, which weakened the sound and deprived it of its purity. Moreover, the speed of the points fixed on radial lines of the disk was necessarily very different from the center to the circumference, and it was very difficult to set the points on the disk. In consequence of the manufacture of this class of watches being very costly they are no longer made.

The object of my invention is to construct musical watches with the usual barrel of music-boxes reduced to a very small size. These small music-barrels present no serious difficulty in their manufacture, since it is the mere reduction of a large music-barrel to a smaller one, upon which the setting of the points may be performed with the same tools if the speed of rotation be the same for both. Moreover, I place the musical tongues in such a position that they are set in motion in the same manner as in music-boxes, by which the highest degree of sonorousness is obtained, and I arrange the mechanism in such manner that the winding up of the spring-barrel of the watch and of the spring-barrel that rotates the music-cylinder, and also the setting of the hands of the watch, are all effected by the crown. To arrive at this result and obtain in reality a "keyless musical watch" and not merely a combined watch and music-box, I was obliged, first, to arrange the wheel-work within the thickness of the pillar-plate, so that the escapement should be under the dial, and to provide for fitting the minute and hour wheels, notwithstanding the fact that the middle part of the pillar-plate is removed to make room for the music-barrel; second, to arrange the gearing for driving the music-barrel so as not to interfere with the watch mechanism and without materially increasing the size of the watch; third, to arrange the mechanism of the watch and of the music-barrel and to combine therewith the winding and setting mechanism so that either the barrel of the watch or the spring-barrel of the music cylinder may be wound up and the setting of the hands be effected by means of the crown; fourth, in consequence of the escapement being under the dial, to provide for regulating the watch without taking off the dial.

In the drawings, Figure 1 represents the mechanism beneath the dial. Fig. 2 represents the parts which are visible when the false cover of the watch is open. Fig. 3 represents the device for setting the hands, and Fig. 4 shows the plate of musical tongues. Fig. 5 represents part of the dial.

The pillar-plate A is slotted for the music-cylinder B, and the arbor of said cylinder is supported by the bridges M′ M². The arbor *b* carries the wheel 13, and this is rotated by the gearing 8, 9, 10, 11, and 12 and spring-barrel 7. The wheel 13 gives motion to the fly *c* by means of the wheels 14, 15, 16, 17, and 18, and all the wheel-work above mentioned is located near the outer edge of the pillar-plate A, so as not to interfere with the watch mechanism.

The device for starting and stopping the music-cylinder, consisting of the levers a a^2, connected by a pin and slot, is similar to that before employed. When the music-cylinder is at rest the spring a', pressing upon the lever a, keeps one end of that lever in a hole in the wheel 13, and the outer end of the lever a^2 is in contact with one wing of the "fly" *c*. When the pin a^4 on the lever a is pressed inwardly by the pin a^{10}, (shown by dotted lines in Fig. 1,) the wheel 13 and fly *c* are released, and the music-cylinder allowed to rotate until the end of a again enters the hole in 13, when said cylinder is stopped. A cam, b', on 13 and the

tappet b^2 are employed, as usual, for changing the tune.

The mechanism of the watch is composed of the spring-barrel 21, center-wheel 22, first wheel 23, crown-wheel 24, and escapement-wheel 25, and anchor 26. This arrangement would require but little change for a cylinder-escapement. The pinion of the center-wheel 22 meshes with the wheel 30, which keeps the hands in motion by the hour-wheel 31 and minute-wheel 32.

The regulation of the escapement is effected by the snail r^2 on the escapement-bridge D, one arm of the regulator-lever r being pressed against the snail by the spring r'. The stud r^6 of the snail projects through an opening in the dial, and is squared at the end to receive a pointer, r^9, above the dial A^2, so that the regulation of the escapement is effected without removing the dial.

The usual marks for indicating the regulation are to be upon the face of the dial A^2, as shown in Fig. 5.

The snail r^2 might be turned by a key applied to the square to adjust the regulator.

The means for winding up the spring-barrels 21 and 7 and for setting the hands are as follows:

G is a rocker-plate or swinging bridge that carries the wheels s, 1, and 19, and said bridge is returned by the spring g^2 to its normal position after having been moved.

s', Fig. 2, is a wheel upon the winding and setting stem S, and said wheel s' is in gear with the wheel s when the parts are in the position shown in Figs. 1 and 2, and in this position either the spring-barrel of the watch or of the music-cylinder can be wound up, according to which way the swinging bridge G is moved.

When in the position shown in Fig. 1 the gear 19 is in gear with the wheel 20 of the spring-barrel of the watch, and that barrel can be wound up by turning the stem S by its crown. When G is moved to bring 1 in gear with the wheel 2, then the spring-barrel of the music-cylinder can be wound up through the wheels 3, 4, 5, and 6. A pusher, s^6, acted upon by the finger, is used to swing the frame G when the music-barrel is to be wound up. The pusher s^6 acts upon a pin, g', on G.

S^2 is a crown-wheel upon a sleeve on the stem S.

e is a lever with its short end in a groove in the stem S and with its outer inclined end in contact with the end of a lever, e', that rests in a groove in the sleeve of the crown-wheel s^2.

e^2 is a spring that bears against the lever e' and tends to raise the crown-wheel and keep it from gearing with the wheel 27. When the stem S is pulled outwardly the lever e acts by its inclined end against the end of e' and the latter forces down the crown-wheel s^2 until it gears with the wheel 27, as shown in Fig. 3. In this position the hands can be set by turning the stem S and crown-wheel s^2 and by the wheels 27, 28, 29, and 30 acting upon the minute-wheel 32 and hour-wheel 31. The crown-wheel s^2 and its sleeve slide upon a square or feather on the stem s, and when this sleeve is moved endwise by drawing out the stem the coupling-teeth at s^4 are disconnected from the hub of the wheel s', so that the latter will not be turned in revolving the stem to set the watch.

I claim as my invention—

1. The combination, with the time mechanism in a watch, of a music-barrel and tongues, a spring and gearing to revolve the barrel, the parts being arranged, substantially as shown, so that the gearing and ply of the music-barrel are near the edges of the pillar-plate and do not interfere with the time mechanism, substantially as specified.

2. The combination, with the time mechanism and spring-barrel in a watch, of a music-barrel, gearing and spring, and a stem-winding mechanism and rocker-plate G, and gearing, substantially as specified, whereby the stem-winding mechanism is disconnected from the spring-barrel of the watch when in gear for winding the spring of the music-barrel, as set forth.

3. In a watch containing time mechanism and its spring and a music-barrel and its actuating-spring, a stem-winding mechanism and a rocker-plate for connecting the stem-winder and gearing with either one of the spring-barrels, substantially as specified.

4. The combination, in a watch, of a time mechanism and its spring-barrel, a music-barrel and its spring, a rocker-plate and gearing, a train of gearing to the hands, and a crown-wheel and mechanism for connecting the same with the hands' gears by an end movement of the stem, substantially as set forth.

Signed by me the 13th day of May, A. D. 1882.

LÉON PIGUET.

Witnesses:
LYELL T. ADAMS,
E. IMER SCHNEIDER.