Breguet Classique 7727

la chronométrie

patent dated november nine, twenty-ten

Breguet

Depuis 1775

la chronométrie

patent dated november nine, twenty-ten

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BREGUET, THE INNOVATOR.

A PERPETUALLY INVENTIVE SPIRIT.

Abraham-Louis Breguet sought constantly to improve the accuracy and reliability of his watches through numerous inventions, ranging from the *perpétuelle* selfwinding watch to the tourbillon. This same spirit of invention motivates the engineers and master-watchmakers of the Manufacture Breguet today. The Classique Chronométrie 7727, packed with new discoveries and technological inventions, is a prime example, as the achievement of several years of research into high frequency, magnetism and new materials.

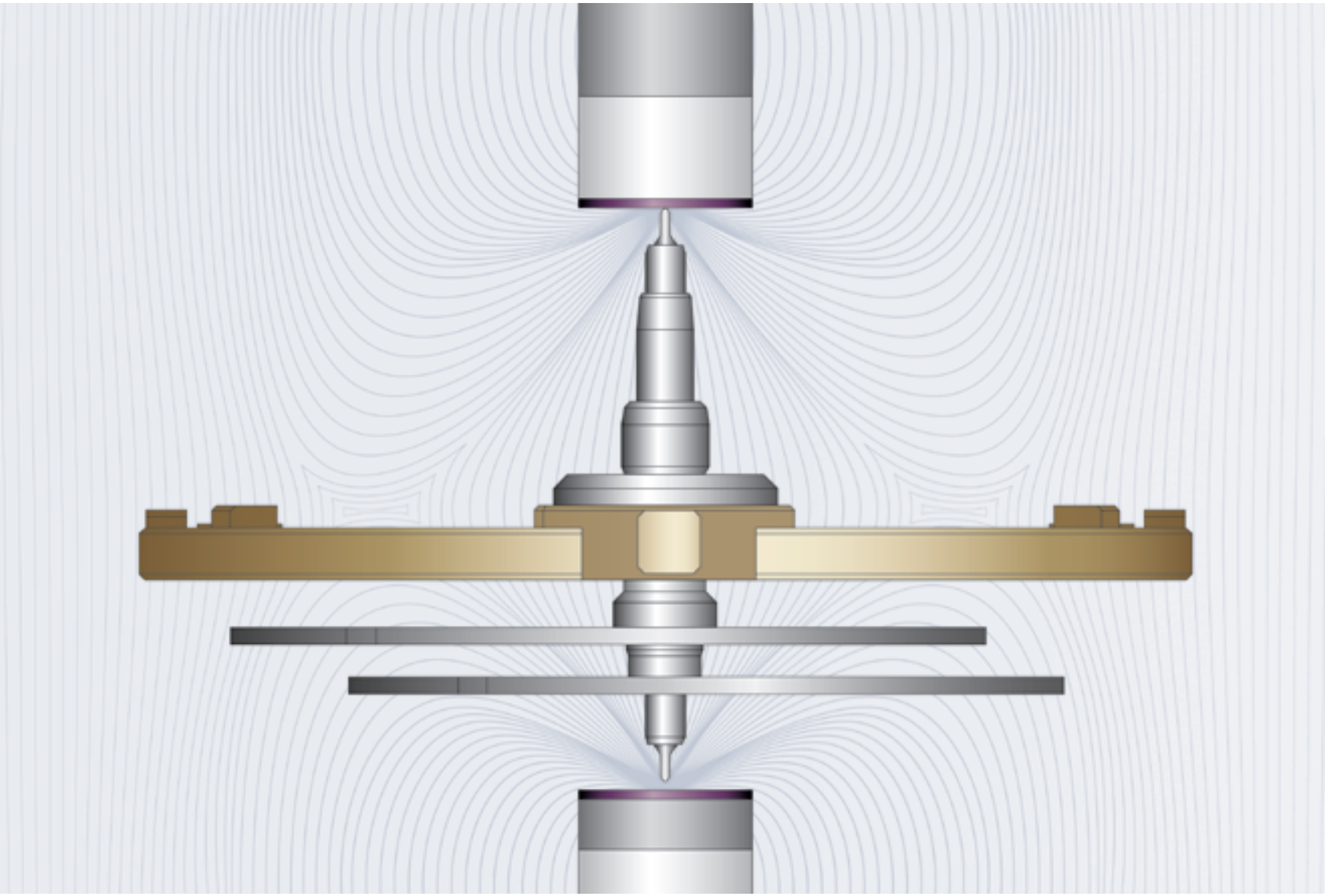
The Classique Chronométrie also honours more than two centuries of Breguet's stylistic tradition with the fluted caseband, welded lugs, engine-turned dial, open-tipped Breguet hands, secret signature and unique number, all of which are the identifying features that express the essence of a Breguet timepiece.

THE MAGNETIC PIVOT. A MAJOR INNOVATION OF THE CLASSIQUE CHRONOMÉTRIE.

With the patent of November 9, 2010 protecting the magnetic pivot, Breguet has set a new milestone in watchmaking history by using magnetism to improve the precision and the reliability of its timepieces. It is likely that the impact of this important invention will not be fully assessed for some years yet.

With the magnetic pivot, the engineers and watchmakers of the Manufacture Breguet have not only mastered the negative effects of magnetism in a mechanical watch, they have also managed to harness them to significantly improve the pivoting, rotation and stability of the balance-staff. By incorporating a powerful micro-magnet in each of the two endstones supporting the balance pivots, Breguet has designed a dynamically stable system that recentres or self-adjusts after a disturbance.

The magnetic pivot consists of a carbon-steel balance-staff and a 'rare-earth' magnet behind each endstone. One of the magnets is stronger than the other so that the balance-staff is in permanent contact with the endstone on the dial side and thus appears to be suspended.



MAGNETIC ATTRACTION MAKES THE BALANCE-STAFF

The magnetic field crossing through the balance-staff keeps the balance stable: it is immune to the low-intensity shocks (the most frequent type) as well as the accelerations to which the watch is subjected. It returns almost instantly to its correct position after stronger accidental shocks. The performance of the balance is thus much enhanced since it does not have to contend with the friction of a conventionally pivoted balance, particularly in a vertical position.

Magnetic induction brings many advantages to the ratekeeping of the movement. The balance-staff is placed in the magnetic field and held against the endstone due to the magnetic flux that also tends to bring the staff back to its optimal position.

Thus maintained in this 'artificial gravity', the balance-staff no longer perceives the differences in position adopted by the watch and the pivoting conditions remain identical at all times. If the staff is knocked sideways, the system acts like a *pare-chute* anti-shock system, thanks to the magnetic return forces generated by the displacement of the staff that auto-

MORE STABLE.

matically bring it back into position to resume maximum magnetic flux. The result is a balance that is more stable and resistant to shocks. The Classique Chronométrie thus achieves an exceptional average daily rate of between -1 and +3 seconds a day.

The magnetic forces are precisely calculated to ensure the mechanism works properly. The bottom magnet is strong enough to keep the balance-staff in its right position, but the stronger top magnet ensures that the top pivot is in permanent contact with its endstone.


CLASSIQUE CHRONOMÉTRIE 7727

THE PROPERTIES OF MAGNETISM.

Magnetism is a physical phenomenon characterised by the appearance of forces of attraction and repulsion. Objects attract or repel each other in a magnetic field.

Certain materials are naturally magnetic or may become magnetised by prolonged exposure to a magnetic field. Watchmakers used to be wary of magnetism. It notably affected the balance spring and could markedly change the rate of the movement or stop it altogether.

The magnetic pivot uses the field of the magnets in a controlled and localised way in order to ensure the stability and performance of the balance.

SILICON AND HIGH FREQUENCY.

Silicon has physical properties that are useful to watchmaking in many ways. Not only can it be cut exactly into the complex shapes of balance springs, pallet-levers and escape-wheels, it is also totally immune to magnetism. This approach now makes it possible to use magnetism without this phenomenon exercising its previously detrimental effect on the ratekeeping of the watch.

Furthermore, the balance spring, the pallet-lever and the escape-wheel also weigh less, thereby not only reducing inertia, but also improving the performances of the mechanical components. These silicon parts allow the frequency of the Classique Chronométrie to be increased to 10 Hz, enabling the measurement of a 20th of a second.

The Classique Chronométrie is also equipped with twin 180° symmetrically deploying balance springs, thereby balancing out their respective forces exercised on the balance-staff as well as contributing to the stability of the oscillator and hence to improved timing precision. These technical achievements, made possible by silicon, considerably improve the regulating performance of the watch.


Au750
SR8
SWISS


BREGUET
10 Hz

CLOSE PROTECTION.

From 1790, Abraham-Louis Breguet, working on the premise that the thin balance pivots were the most vulnerable to shocks, made them into a cone shape held in place against a corresponding cavity in a stone on a blade spring, and called it the *pare-chute*.

With the magnetic pivot, Breguet pays tribute to this brilliant invention, visible at two o'clock on the dial of the Classique Chronométrie. This dynamically stable system protects the balance and provides an effective response to the disturbing effects of accelerations and low-intensity shocks.

Incorporated within the *pare-chute*, the magnetic pivot serves to safeguard the mechanical integrity of the system and to enhance its precision.

SIX DIFFERENT *GUILLOCHÉ* PATTERNS

In 1786, Abraham-Louis Breguet designed and produced dials in a new style with *guilloché* patterns in silver and gold. Although rare today, these patterns engine-turned by hand on a rose engine remain one of the hallmarks of the Breguet watch.

A delicately *guilloché* dial is a work of art in itself. The artisan applies a graver to cut the smooth disc of the dial in different patterns. The dial of the Classique Chronométrie is decorated with six different engine-turned patterns: "Geneva waves" in the centre, a "*clou de Paris* hobnailing" for the small seconds at twelve o'clock, "sunburst" for the tenth-of-a-second counter at one o'clock and "chevrons" for the power-reserve indicator at five o'clock. The hours chapter has a "cross-hatched" surface while the outer edge of the dial is cut in a "barleycorn" pattern.


BREGUET 5117
60
40
20

CLASSIQUE CHRONOMÉTRIE 7727BR/12/9WU

Case in 18-carat rose gold with finely fluted caseband, sapphire caseback, 41mm in diameter. Welded lugs with screw bars. Water-resistant to 3 bar (30m).

Silvered gold dial individually numbered and signed Breguet, adorned with six different guilloché *patterns, all engine-turned by hand on a rose engine. Off-centred hours chapter. Blued steel open-tipped Breguet hands.*

Mechanical hand-wound movement, numbered and signed Breguet, Cal. 574DR. 14 lignes. 45 jewels. Balance on magnetic pivot. 60-hour power reserve with an indicator at five o'clock. High-frequency in-line Swiss lever escapement (10Hz) with twin silicon balance springs.


BREGUET
20
40
60


BREGUET
20
40
60

CLASSIQUE CHRONOMÉTRIE 7727BB/12/9WU

Case in 18-carat white gold with finely fluted caseband, sapphire caseback, 41mm in diameter. Welded lugs with screw bars. Water-resistant to 3 bar (30m).

Silvered gold dial individually numbered and signed Breguet, adorned with six different guilloché *patterns, all engine-turned by hand on a rose engine. Off-centred hours chapter. Blued steel open-tipped Breguet hands.*

Mechanical hand-wound movement, numbered and signed Breguet, Cal. 574DR. 14 lignes. 45 jewels. Balance on magnetic pivot. 60-hour power reserve with an indicator at five o'clock. High-frequency in-line Swiss lever escapement (10Hz) with twin silicon balance springs.

HISTORY IS STILL BEING WRITTEN...

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