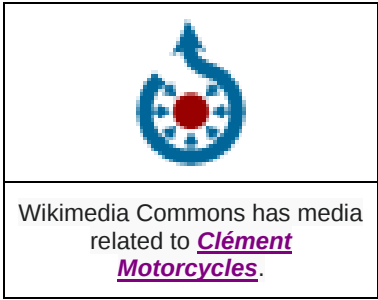


The Voiture Clément-Panhard (VCP)

Clément-Panhard is an automobile designed in **1898** by [Arthur Constantin Krebs](#), manager of [Panhard & Levassor](#) co, from his **1896** patent of a car fitted with an electromagnetic gearbox, whose license was acquired by [Émile LEVASSOR](#).

When [Adolphe Clément](#) as Chairman of the Board of Directors of [Panhard-Levassor](#) and project leader, saw the factory could not meet the production requirements for circa 500 units of that new model, he undertook manufacture under license at his factory in [Levallois-Perret](#) under the name of ***Voiture Clément-Panhard (VCP)***.

The model was launched in December 1898 on the first [Paris Motor Show](#) where 300 orders were received. Production ran at least until **1902**.



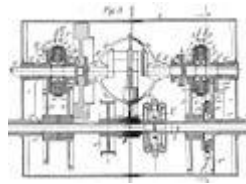
Voiture Clément-Panhard (VCP)	
	
Overview	
Manufacturer	Panhard & Levassor
Production	1898–1902 500 produced
Assembly	Panhard & Levassor, Paris, France
Designer	Arthur Constantin Krebs
Body and chassis	
Body style	Phaeton and many others
Layout	RR layout

Sommaire
- The 1896 A. C. KREBS system car - The 1898 <i>Voiture Clément-Panhard (VCP)</i> model - Engine - Chassis and body - Steering - Production - New VCP 1901 models - The Stirling Motor VCP models - The Clément autocyte with removable motor - Technological analogies between the VCP (1898) and the FORD N (1906) - The surviving and famous VCP cars - Documentation - References - See also - External links - Categories

The 1896 A. C. KREBS system car



1896 – A. C. KREBS at the steering lever of his system car.



1896 – Electromagnetic gearbox from A. C. KREBS's car patent.



1896 - A. C. KREBS car patent drawing [FR256344](#).



1896–1903 A.C.KREBS Steering Systems: the electromagnetic gearbox and [the speed controls on the steering wheel](#).

The **1896** Krebs system car ([FR256344](#), [GB189619774A](#), [BE124538](#)) introduced several new features in the emerging car design:

- **The three-point suspension system generalized (engine and chassis)**
*"Since we know that three points are enough to determine a plane."
"To these sides [of the frame of the car] I fix or suspend at three points provided with pivoted joints, the motor mechanism which is thereby placed out of the influence of the deformations to which the frame of the car is liable to be subjected during the motion."* ([GB189619774A](#))
- **The electromagnetic constant mesh gear box**
"I had imagined this arrangement to avoid the brutal shocks that the gears undergo when changing gear, a solution that seemed barbaric to me." ²
- **The speed shifting at the steering device**
"For the purpose of operating the electro-magnetic clutch, I employ a commutator arranged preferably under the handle bar and adapted to be operated in such a manner as to establish, according to five different positions, the electrical connections that correspond respectively to: rest; forward movement at low speed; forward movement at medium speed; forward movement at high speed; and movement in the rearward direction."
- **The damped steering and the rack and pinion steering gear**
"Upon the turntable of the fore-carriage is fixed a toothed sector in which engages a pinion mounted on the upper turntable and whose axle carries a toothed wheel situated in a box connected by two tubes to the box of the car. A second toothed wheel mounted on the steering spindle is connected to the first one by means of a chain passing through these two tubes. Elastic rods, consisting for example of coiled springs, are substituted for the links of the chain in the straight portions of the said tubes. By this means the chain is always taut and the springs neutralize the vibrations transmitted to the chain by the jolting of the fore-carriage and so prevent the said vibrations from being transmitted to the steering spindle." ([GB189619774A](#))
- **The forward (positive) caster angle on the steering axle**
"To ensure the stability of direction by the means of a special arrangement of the fore-carriage, that is to say, to re-establish automatically the parallelism of the two axles of the vehicle when there is no tendency to keep them in any other direction, or after a temporary effort has caused them to diverge from said parallelism ; [...] The axle of the fore-carriage is situated behind the projection of the axis of the pivot pin in order to ensure the stability of direction above referred to [of a quantity which can vary from 1/7 to 1/8 of the distance which separates the points of contact of the two front wheels with the ground." ([GB189619774A](#))
- **The metallic wheel hub system**
[Levassor to Krebs](#): "You would kindly give us permission to use your wheel hub system for which, since you say it is very good, it might be worth patenting."
- **Aesthetic**
"The car of Commander Krebs, resulting from very personal and new ideas, has a particular and original aspect. We will add that this aspect is very satisfying and more elegant than any car that we have been allowed to see so far." ¹

The 1898 Voiture Clément-Panhard (VCP) model



1899-05-06 – THE-AUTOCAR: "The light Panhard car".
The [mechanical version of the electromagnetic constant mesh gearbox](#) of the A. C. KREBS system car.



1900 – Clément-Panhard driven by a woman.



1900 - one of the 1st [Spanish vehicles registered in the Balearic Islands](#).



1900 – Mr Herbert Farthing collected his Clément-Panhard (VCP) [from the docks at Southampton](#).



1927 - The VCP at the first "London-to-Brighton veteran car run" in November 1927.



1946 – Movie "La revanche de Roger la honte": "In 1885. Roger Laroque, a courageous industrialist, is embroiled in a criminal intrigue by the deviousness of his mistress."



1950 – Clément-Panhard [driving through Paris](#) (video).



2004 – 1899 Panhard et Levassor – the Clément-Panhard Car (VCP) from A. C. KREBS: "[a mechanical nightmare](#)" (video).

In **1896** A. C. KREBS intended to design a car system **simple, reliable, aesthetic and secure for beginners**. The **1898** Clément-Panhard car inherited the **1896** KREBS patent features, and got new ones:

Date	VCP patents	Title
1897	FR273374	The Krebs cone clutch: <i>Improvements to clutches</i>
	GB189730790A	<i>Improvements in Friction Couplings</i>
1897	FR273375	The mechanical constant-mesh Krebs gearbox: <i>Improvements to transmissions with speed change</i>
	GB189730791A	<i>Improvements in Speed Changing Transmission Gear</i>
	ES22155A1	<i>A new transmission system, particularly applicable to automatic cars</i>
1898	FR284596	The Voiture Clément-Panhard patent: <i>A petroleum-powered light car system</i>
	GB189902960A	<i>Improvements in Light Motor Road Vehicles</i>

- **The three-point suspension system generalized (engine and chassis)**

This principle is identical, although the front axle is simpler. With the central pivot axle, the intention of A. C. KREBS is double:

- ✓ Make the front axle independent of the chassis so as to keep the chassis in a horizontal position even in the event that one of the steering wheels is lifted by an object in its path:
"One may wonder why this arrangement, generally considered defective for high-speed cars, was adopted for this cart. This is due to the fact that the manufacturer had above all in view to establish a car of a moderate price, essentially maneuverable, able to make turns on the spot and never having to exceed the speed of 30 kilometers per hour. Under these conditions the steering by rigid axle was perfectly admissible." ³
- ✓ Apply the [caster angle](#) principle (see below).

- **The mechanical constant mesh gear box**

The electromagnetic gearbox is replaced by a mechanical gearbox on the same principle of gears always in mesh. ([GB189730791A](#))

- **The speed shifting at the steering device**

The speed shifting is now located on the right side of the car.

- **The damped steering and the rack and pinion steering gear**

This steering principle is identical, although the rack and pinion system is simpler.

- **The forward (positive) [caster angle](#) on the steering axle**

This steering principle is identical:

"The swivel pin extending up from the front, axle for carrying the front end of the vehicle body, is connected to the axle spring by a bracket pivoted horizontally to the spring, and the swivel pin is slightly inclined backward at its upper end so that a downward extension of its axial line will pass at a slight angle in front of the wheel axle. By this arrangement when the front axle has been turned more or less out of its position parallel with the rear axle for lateral steering or turning, and is then released, it will, automatically move-back into the parallel position." ([GB189902960A](#))

- **The metallic wheel hub system**

A. C. KREBS generalizes his metallic wheel hub system to the entire Panhard & Levassor range.

- **Aesthetic**

[Mr. de Nève said of his VCP in 1950](#): "It's a small Duke Clément-Panhard of 3 hp. A low, open, two-seater car, engine in the back, **well made to show off, with a lady by its side.**"

- **The Krebs cone clutch**

The Levassor cone clutch improved by A. C. KREBS (see patent above).

- **Engine regulation on admission**

A. C. KREBS introduce the Engine regulation on admission, instead of the exhaust (see patent above).

- **1899 – The constant level carburetor ([FR295792](#)).**

- **1900 – The water circulation pump ([FR300040](#)).**

- **Engine**



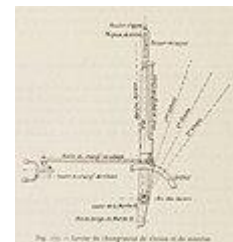
1900 – [The VCP chassis](#):
"The Voiturette Clément-Panhard **created by Commander Krebs** has the same basic qualities as the big cars built in the factory run by this learned engineer."



1900 – [The A. C. KREBS engine](#).



1900 – [The VCP engine block](#).



1900 – [The VCP gearshift lever](#).

Krebs developed the engine specifically for this vehicle. It is a single cylinder four-stroke engine with originally a bore of 90 mm, a stroke of 120 mm and a displacement of 763cc.

[No accelerator pedal](#). The engine always gives its maximum power. At that time the accelerator pedal disengaged the regulator, which was not desirable for a public of beginners. The electric ignition will add a lot of smoothness to the ride (see below).

The engine body is cooled with air, the cylinder head with water. The ignition system consists originally of a burner and hot tube. With the jet carburetor, the engine runs on both petroleum and gasoline. It has 3.5 hp. In the vehicles from **1901**, the engine has an output of 4.5 hp and more.

The engine is housed in the rear, standing with a slight backward tilt. The gearbox is a mechanical version of the constant mesh electromagnetic gearbox from A. C. KREBS' **1896** patent. A reverse gear was available from **1899**.

- **Chassis and body**

Steel tubing was welded for the chassis, allowing it to be kept light yet strong. The suspension consists of a front transverse leaf spring, which accommodates the vertical steering pin and rotates with the complete front axle when steering, and a pair of longitudinally arranged elliptic springs on the rear axle.

At first there was only a two-seater body as Phaeton. In **1900** variants were added that had a narrow rear-facing seat, making it a three-seater in a [vis-à-vis](#) arrangement.

The vehicle weighs 350 kg and 30 km/h is the maximum speed. The first bodies were made of the aluminum alloy called "[Partinium](#)".

- **Steering**

The driver sits on the right and steers using a steering wheel. Instead of Ackermann steering A. C. KREBS chose center-pivot steering operated by a gear wheel at the lower end of the steering column and a rack. The device worked satisfactorily on this light and lightly motorized car (see above).

- **Production**

Estimates are from around 500 to around 600 vehicles produced. The first production car was given the engine number 101. Production may have officially ended in 1902, but it cannot be ruled out that a few more copies were made from existing parts by 1903.

[Stirling Motor Carriages](#) of [Scotland](#) manufactured about 200 vehicles and sold them in many countries (see below).

New VCP 1901 models



1901 – "[Cycles Automobiles Clément](#)" – advertisement for Clément-Panhard Cars.



1901 – Advertising postcards for the Voiture Clément-Panhard (VCP): "[What are they waiting for? Ah! it can only be a ... Clément-Panhard car](#)".



1902 – The Clément-Panhard new model: "[6 horsepower engine, electric ignition, wooden wheels, high-speed car](#)".

In **1901**, new features are introduced in the VCPs: ³

- ✓ **Both hot tube and electric ignition (from 1900)**
"The ignition advance lever makes it possible to obtain all the speeds between two speeds of the gear change by suitably varying the engine speed." ³
- ✓ **A. C. KREBS irreversible worm gear steering and Ackermann system.** ³
- ✓ **Front suspension with two tweezer springs.** ³
- ✓ **Detachable gearbox locks.** ³

The Stirling Motor VCP models

From 1901 **John Stirling** buys Clément-Panhard chassis to sell them in many countries with his own bodies.

To prove the robustness of the Clément-Panhard, **in July 1901** John Stirling broke the record for crossing the United Kingdom [from John-O'-Groat's to Land's End](#) in 59 hours and 15 minutes.



1901 – VCP
Stirling: **Parisian Phaeton.**



1901 – VCP
Stirling: **delivery van.**



1901 – VCP Stirling:
miniature brougham.



1901 – VCP
Stirling: **light dog-cart.**



1901 - Stirling light dog-cart.

The Clément autocycle with removable motor

1901 - At the auto show, Clément presented an engine set that could be fitted to any bicycle. This engine is derived from the Krebs engine for the Clément-Panhard Car and is dependent on the Panhard & Levassor patents and is dependent on the [Panhard & Levassor patent related to the intake regulation](#).



1901 - [The Clément autocycle with the removable motor](#) derived from the Krebs engine of the Clément-Panhard Car.



1901 - Advertisement for the Clément autocycle mentioning [the dependence on the Panhard & Levassor patents](#) of A. C. KREBS.



1902 - [Clément Autocyclette](#) 143 cc with **A. C. KREBS** intake regulation.



Wikimedia Commons has media related to [Clément Motorcycles](#).

Technological analogies between the VCP (1898) and the **FORD N** (1906)



1900 - Clément-Panhard (VCP) Phaeton.



1906 - Ford model N.

It should be noted the many similarities in principle between the **Clément-Panhard car** of **1898** (see above) and the [Ford model N](#) of **1906**, forerunner of the [Ford model T](#) of **1907**:

- ✓ Intended for **the general public**;
- ✓ Solid and **safe**;
- ✓ Generalization of the **suspension by 3 points** and triangulations;
- ✓ **Transverse spring** on the front axle, so **the VCP waddles as does the Ford T**;
- ✓ A **quasi-automatic gearbox** etc.

Note the use of [vanadium steel](#) by Ford comes from a Panhard & Levassor racing car that crashed during a race in America.

The surviving and famous VCP cars



Side view of the **1900 Clément-Panhard** Phaeton (VCP), 765cc 3,5cv, achieving a top speed of 35kmh.



The **1900 Clément-Panhard** Phaeton (VCP).



Front view of the **1900 Clément-Panhard** Phaeton (VCP).

According to [a website specializing in this model](#), 17 vehicles still exist.

specified year of construction	Exhibition place	Chassis no.	engine no.	Vehicle UK registration number	Picture
1899	Sparreholms Motormuseum Sparreholm, Sweden	141	195	IY 45	 This car was the third car in Ireland.
1899	United Kingdom	210	201	V 46	 This car 'won' the 1927 London to Brighton driven by John Bryce.
1899	United Kingdom		171	PX 98	This car was part of the French collection of Henri Malartre displayed at the Chateau de Rochetaillée-sur-Saône near Lyon (France).
1899	Museo Nazionale dell'Automobile, Turin		260		 Clement-Panhard 3 HP, 1899

specified year of construction	Exhibition place	Chassis no.	engine no.	Vehicle UK registration number	Picture
1900	United Kingdom	244	356	AH 48	 This car was owned by André de NEVE from the 1930s to 1950s. M. NEVE was a former President of the Teuf Teuf club in France and he was often seen with his car at morning events in Paris including the Course de Côte Automobile in Montmartre.
1900	United Kingdom	366	166	FX 149	 Has been in the Norwood family since 1970.
1900	United Kingdom	238	238	BS 8237	Rebuilt by Arthur Livingstone in the UK in the 1980s.
1900	James Hall Transport Museum in La Rochelle, Johannesburg, South Africa	328	328		 It took part in the 1928 Emancipation Run and finished with an average speed of 22 kph.
19xx	Riverside Museum Glasgow, Scotland	539	419	HD 68	 "Josephine" was discovered in the early 1930s and took part in the 1938 Brighton Run.

specified year of construction	Exhibition place	Chassis no.	engine no.	Vehicle UK registration number	Picture
1900	Cité de l'Automobile Mulhouse, France		469		
1901	France		448	A 57	 National Motor Museum, Scotland. This Stirling-Panhard was owned by G. James Allday, President of VCC of Great Britain (1946–1954) who loaned it to the Beaulieu Motor Museum, England.
1901	Netherlands				Took part in the 1966 London to Brighton Run (#56), the entrant was Mr. A. Janssen from Holland.
1902	Museums Collections Centre Birmingham, England			O 65	
1900	United Kingdom	577	462	BS 8010	 From 1972 to 2003 the car was in the Lips Autotron an automobile museum in Drunen and later Rosmalen.
1900	Alsace, France		264	11 ZT 67	 Mr. Reithoffer restored a Clément-Panhard that he acquired as a wreck in 1989.

specified year of construction	Exhibition place	Chassis no.	engine no.	Vehicle UK registration number	Picture
1900	Museu da Misericórdia Salvador, Brasil		475		 The oldest car in Brasil and was still taking part in rallies in Salvador until recently.
1900	Tallinn, Estonia				 In 1902, Captain Fiodorov bought a Clément-Panhard car in Saint Petersburg, thus becoming the first oil-powered automobile in Estonia. Here racing driver Julius Johanson is driving this car.
1901			313		 From the 1940s this car was in the Lindley Bothwell collection in the US.
1900	Palma de Mallorca, Spain			PM1	 First car to be registered in Spain in Palma de Mallorca with the registration PM1.
?			581		Engine only: discovered in a barn in Southern England in 2011. A whole car has now been built around this engine.
1901		443	443	CXI 593	 Panhard-Stirling 1901 Model: 5hp dos-à-dos light Dog Cart

specified year of construction	Exhibition place	Chassis no.	engine no.	Vehicle UK registration number	Picture
1901					 Panhard-Stirling: 1901 Model (LD Photography).
1901					Clément-Panhard: 1901 Model  John Tiffin  Andrew Wright

Documentation

- Bernard Vermeylen: *Panhard & Levassor. Entre tradition et modernité*. E-T-A-I, Boulogne-Billancourt 2005, ISBN 2-7268-9406-2.

References

- LA FRANCE AUTOMOBILE, **LA VOITURETTE KREBS**, 1896 p.305, by Louis Lockaert, ingénieur École Centrale of Paris.
- 1924-06** – [Autobiographic letter](#) from Arthur Constantin KREBS to his cousin General de Montluisant (SHD-DE-2014-PA-40) asking him to explain his career following the article by Paul Renard in the "Revue Aéronautique" about the 40 years of the dirigible "La France" (Krebs arch.).
- 1900-Automobiles at the 1900 Exhibition** [by Commander Ferrus and Captain Genty]. [Extract from the Commission's report](#).

See also

- Wikipedia - **English**:
 - [Clément-Panhard](#)
 - [Stirling-Panhard](#)
 - [Clément-Stirling](#)
- Wikipedia - **Deutsch**:
 - [Clément-Panhard](#)

Categories

- [Arthur Constantin KREBS](#)
- [Adolphe Clément-Bayard](#)
- [Defunct motor vehicle manufacturers of France](#)
- [Vehicle manufacturing companies established in 1898](#)
- [Companies based in Paris](#)
- [Veteran vehicles](#)
- [Brass Era vehicles](#)

External links

- **1901** – [1898 and 1901 VCP versions exposed at the Clément stand](#) at the Paris Motor Show. Panhard-Levassor Light Two-Passenger Car.
- **1901** – [The Stirling cars: The **light car DE LUXE**, The "**John O' Groater**".](#)
- **1901** – ["*The record for crossing England from the North to the South West, from John O' Groats to Land's End, has just been beaten by M. J. Stirling. Leaving on July 30 in the morning from John O' Groats, he arrived 59 hours later at Land's End which is 847 miles from the start.*"](#)
- **1901** – [Automobiles in the Glasgow International Exposition: Stirling Parisian Phaeton](#)
- **1902** – [The **Stirling Miniature Brouham**, the 1902 **Stirling Light Dogcart**.](#)
- **1902** – [The **Stirling Light Delivery van**: "**Simple, Reliable, Attractive, Economical, Expeditious.**"](#)
[The Stirling Parisian Phaeton: "**Up-to-date, the fashionable light car, can be driven by a Lady**".](#)
- **1902** – [The 1902 **Stirling Light Dogcart**: "**Up-to-date, latest improvements**".](#)
- **1902** – ["**If you value your life ... don't buy an Experimental or untried car.**"](#)
- **1904** – [Self-propelled vehicles.](#)
- [La Voiturette Krebs](#) from rbmn.free.fr
- [Clément-Panhard on the web](#)