

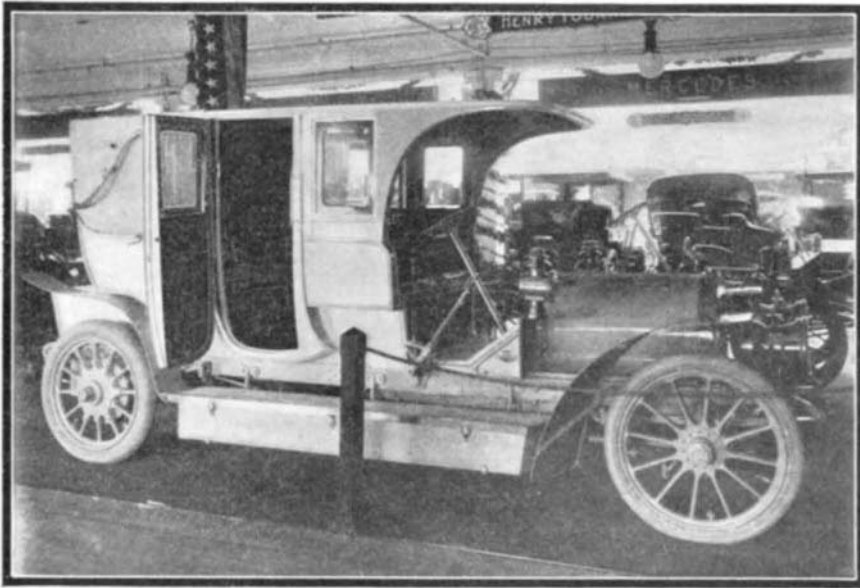
**FOREIGN AUTOMOBILES AT THE IMPORTERS' SALON.**

The illustrations below on this page show some of the finest foreign cars that were exhibited on the top floor of the Macy building in this city during the past two weeks.

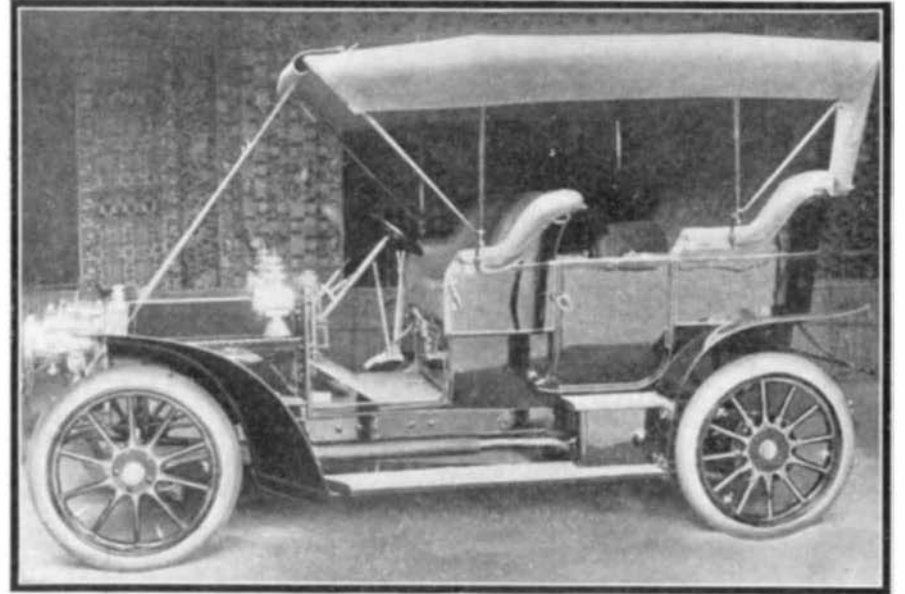
The large Hotchkiss closed car at the top of this page was one of the handsomest automobiles of this type exhibited. It is intended for both city and country use, and is both luxurious and commodious. It is fitted with a 20 to 24-horse-power motor having its crankshaft mounted on ball bearings like those shown in the cut (page 61), and which is fitted with mechanically-operated inlet valves, low-tension magneto ignition, a mechanical lubricator, and a honeycomb radiator having triangular tubes so arranged that the entire surface of every tube is utilized for cooling the water, which is circulated by a centrifugal pump gear-driven from the cam shaft. The make-and-break igniters are of a special construction, which causes a quick break even at slow speeds. Two levers in the steering wheel control the spark

and throttle. When the clutch is thrown out, the carbureter is automatically throttled, so that the engine does not race. The clutch and brake pedals are of the push type, on long vertical levers. The universally-jointed driving shaft is so arranged as to permit of longitudinal as well as angular displacement, thus removing from it all strains except torsional ones. The expanding-ring brakes on the rear wheels are compensated in an ingenious way, so that one cannot act more strongly than the other. The experience of the Hotchkiss firm with a ball-bearing crankshaft during the past year shows that if properly constructed and with the best materials such a bearing is practical. The winning of several races on land and water is credited to this feature. Non-adjustable ball bearings are used throughout the car wherever possible. The springs separating the balls can be compressed, and the balls assembled in the lower half of the ring, which is then dropped and the balls removed, when it is desired to take the bearing apart. Tubes of oil-soaked felt are inside each spring.

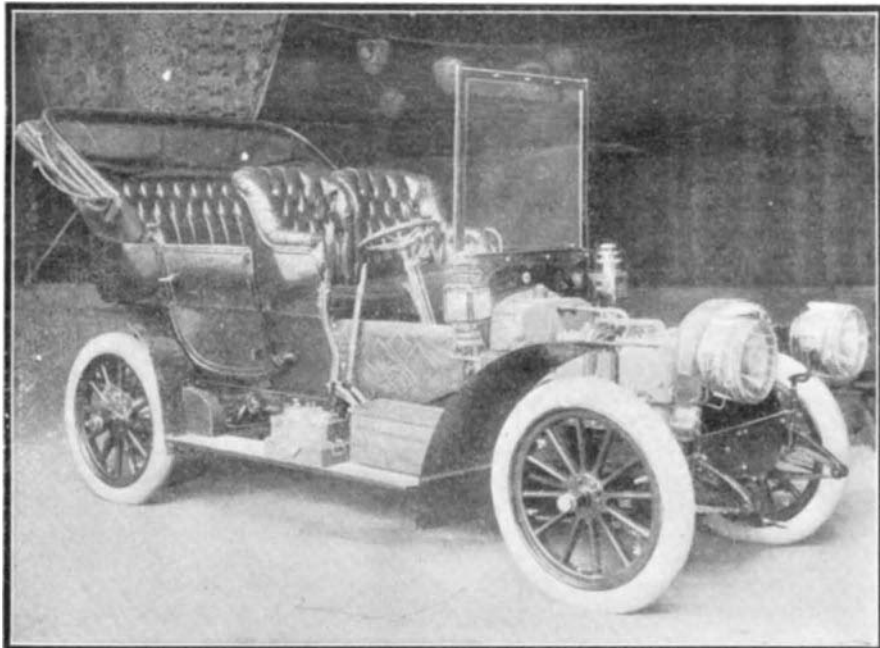
The Martini automobile is made in Switzerland by the well-known gun firm of that name. It is built under the Rochet-Schneider patents, and it has made several fine performances both in England and on the Continent. The car which we illustrate is the 18 to 20-horse-power model, containing a four-cylinder motor, three-speed transmission gear, and chain drive to the rear wheels. The cylinders of the motor are 100 millimeters (3.937 inches) bore, and the pistons have a 130 millimeter (5.118 inches) stroke. The motor speed can be varied from 200 to 1,200 R. P. M. All the valves are mechanically operated and interchangeable. The carbureter is fitted with automatic air and gas regulator, and is heated from the exhaust. The spraying nozzle is removable for cleansing without disturbing the float. Simms-Bosch magneto ignition of the low-tension type is used. The water is circulated by a gear-driven rotary pump, which is completely inclosed. A honeycomb radiator with a fan to aid in cooling the water is fitted to the front of the car. The bearings used throughout are of the



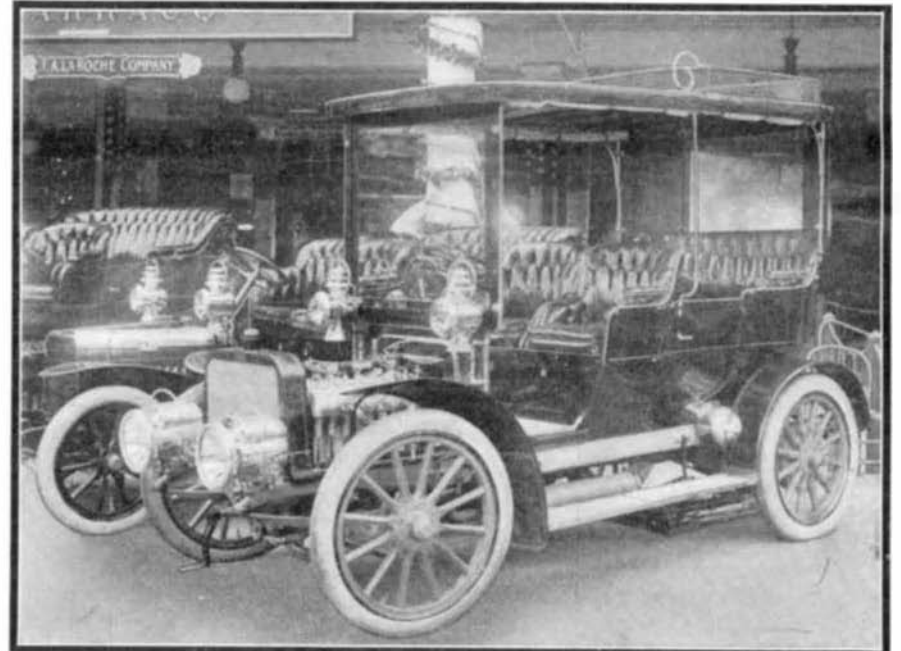
A Handsome Hotchkiss Limousine Fitted with a 24-Horse-Power Motor.



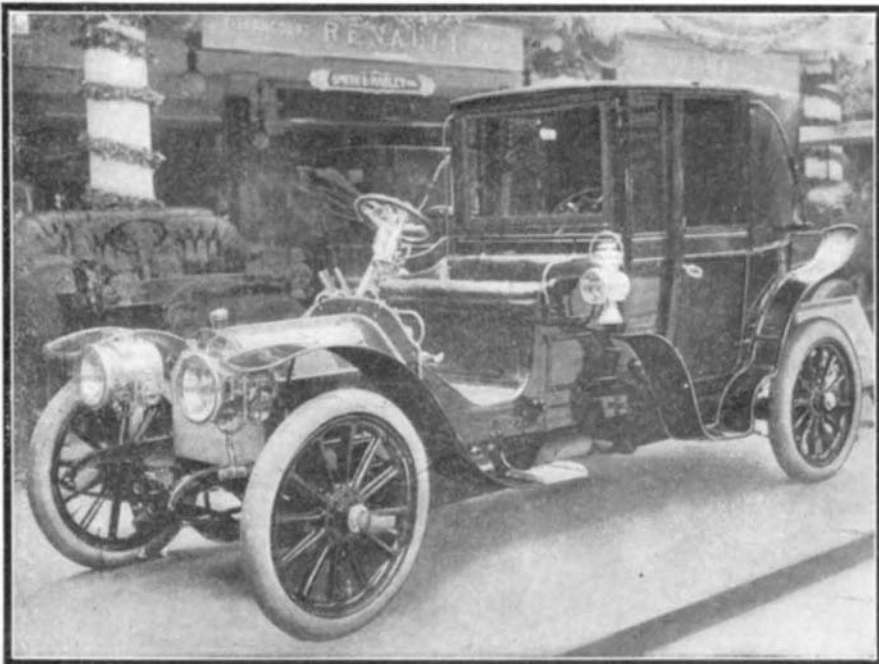
An 18 to 22-Horse-Power Swiss Martini Car Fitted with Cape Cart Top.



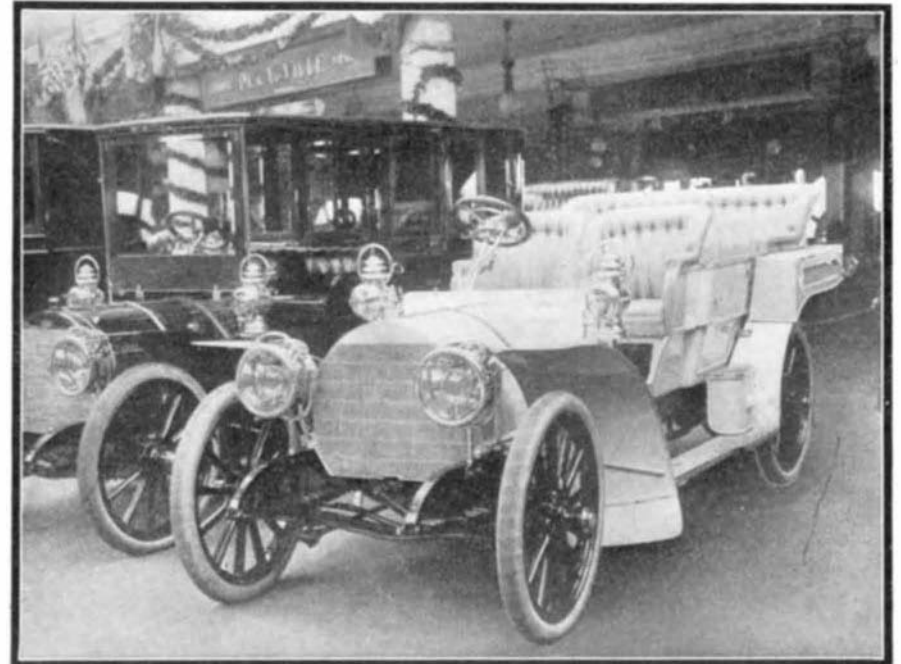
A 16 to 20-Horse-Power Delahaye Car. Leather Flaps Inclose the Front Entrance.



A 20 to 22-Horse-Power Darracq Covered Side Entrance Touring Car.



The Latest 28 to 32-Horse-Power German "Mercedes" Brougham.



The 24 to 30-Horse-Power Italian "Fiat" Side Entrance Tonneau.

EXAMPLES OF EUROPEAN CARS EXHIBITED AT THE IMPORTERS' SALON.



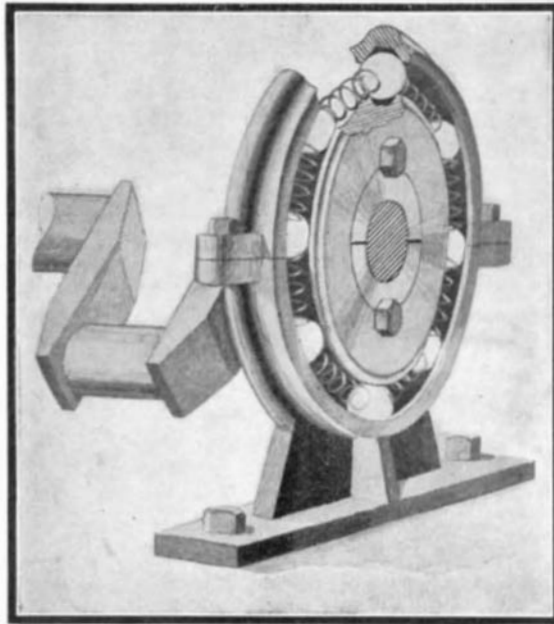
latest non-adjustable type, illustrated in the cut on this page as applied to the crankshaft of the Hotchkiss motor. The artillery wood wheels are 34 inches in diameter, and are fitted with drums for double-acting expanding-ring brakes. The drums also contain ratchet teeth, into which a pawl is dropped when ascending a hill. Should the car stop from the breaking of a chain, and the brakes fail to hold, the ratchet would positively hold it. A double-acting metal band brake on a differential shaft is water-cooled from a small reservoir carried on the dash. Another feature of this car is a locking device on the differential shaft, whereby the differential can be locked and the car driven by one chain if found necessary. The starting crank is always held upright without the aid of straps. The gasoline is fed to the carbureter from the tank in the back of the car by means of air pressure, which is supplied from a positively-acting air pump. A gage is fitted to show the pressure. The cylinder oiler is heated by the exhaust, and arrangements are also made for pumping kerosene into the cylinders by a small hand pump connected with the kerosene reservoir. Among the achievements of this car are the ascent of the Rochers de Naye, one of the highest peaks of the Alps, on the ballast of the cogwheel railway roadbed (which was described in SUPPLEMENT No. 1460), and a 4,000-mile endurance run, lasting twenty-two days, which was completed in England about a month ago, and during the course of which a total consumption of 245½ gallons of gasoline was effected, and an average daily mileage of 181.8 miles was made. The water evaporated in traveling this distance was only 3.9 gallons, and the average mileage per gallon of fuel was 16.3.

The Delahaye machine, exhibited at the Importers' Salon, is fitted with a four-cylinder 16 to 20-horse-power motor, having low compression, and consequently being very smooth in operation. The cylinders are cast in pairs, and all the valves are mechanically operated. The ignition is of the jump-spark type by means of a high-tension magneto. A tubular radiator, cooled by a fan and having its water circulated by means of a centrifugal gear-driven pump, is used. The engine is oiled automatically by means of a mechanical lubricator. The carbureter employed is of the automatic type, and can be readily controlled from the seat. The car has a four-speed transmission, the speeds being obtained by a single lever, and the drive being direct on the high-speed. There are two double-acting metal band-brakes on the rear wheel, and one foot brake on the main shaft. A chain drive to each rear wheel is employed. The car has the standard tread and a variable wheel base of 90 to 130 inches, according to the wish of the purchaser. The chassis is of pressed steel, and has a width of 2 feet, 7½ inches. The car exhibited is finished in red, and fitted with real-leather side flaps on each side of the entrance to the front seat, for the purpose of inclosing the footboard of front seats, as well as the tonneau.

The covered side-entrance tonneau of the Darracq make, exhibited at the Importers' Salon by F. A. La Roche & Co., is one of the typical 1905 French cars. The motor used is fitted with high-tension ignition by means of a coil and batteries. The motor is also fitted with a governor, which acts on the throttle valve. A three-speed transmission operated by a single lever is used. This transmission gives a direct drive on the high speed. Some of the Darracq motors are fitted with low-tension magneto ignition, as well as that of the usual high-tension type. This firm is one of the few to build single and double cylinder cars, as well as those of the four-cylinder type. The Darracq cars hold many of the records abroad, among which is that for the flying kilometer in 21 2-5 seconds, equivalent to a speed of 104.46 miles an hour; and also the flying kilometer uphill at Gailon, France, in 29 seconds, which is equal to a speed of 77 miles per hour. The non-stop run from New York to St. Louis and back—a total distance of 3,450 miles—which was made last summer by Mr. La Roche on one of these machines, should also be put down to the credit of the Darracq firm.

The 28 to 32-horse-power brougham shown herewith

is one of the new Mercedes models for 1905. The engine has mechanically-operated valves, magneto ignition, and a special carbureter regulated by the governor and having an automatic auxiliary air valve. A fan-cooled radiator and the usual centrifugal pump are used for cooling the water. The car is fitted with four speeds and a reverse, and the brakes on the differential are water-cooled. There are expanding ring emergency brakes on the rear wheels. The steering gear is of the

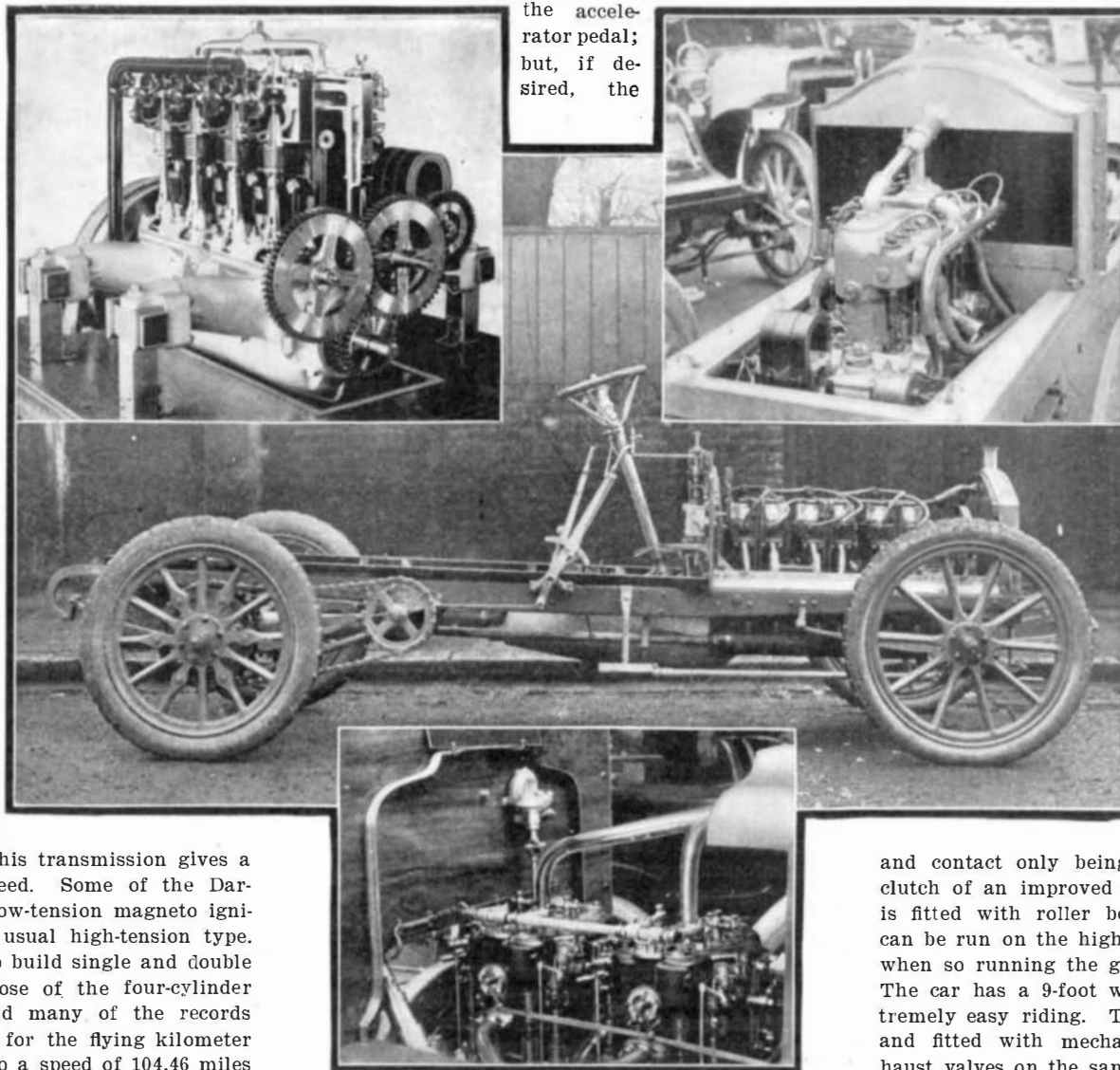


The Ball Bearing Crankshaft on the Hotchkiss Car.

non-reversible type. The spark advance is fitted on the steering wheel. An automatic oiler worked by compression is used. The car is mounted on the usual frame of pressed steel, and is finished with the customary thoroughness of all German machines.

One of the main features about the Fiat automobile is its simplicity. The car is controlled by two levers and three pedals. The levers beside the seat change the gears and apply the brakes to the rear wheels, while the pedals let out the clutch, apply the differential brake, and operate the accelerator. The ignition is advanced and the throttle opened simultaneously in proportion to the speed of the engine. This is controlled by

the accelerator pedal; but, if desired, the



SOME FOREIGN MOTORS EXHIBITED AT THE NEW YORK SHOWS.

A beautifully cross-sectioned model of a four-cylinder C. G. V. motor is seen at the left; the new Renault motor and dashboard radiator at the right; a six-cylinder Napier chassis in the center; and the Richard-Brazier motor with make-and-break magneto ignition at the bottom.

pedal can be interconnected with a small lever working over a sector on the steering wheel. The car shown in the illustration is of the 24 to 30-horse-power type, having a very large side-entrance tonneau. The engine is fitted with magneto ignition, and a mechanical lubricator supplies a definite quantity of oil to all cylinders regularly. The transmission gear gives four speeds forward and one reverse. The Fiat cars have been seen frequently on the race tracks of this country, and they hold several records for hill climbing, speed, and fuel consumption, both here and abroad.

The four-cylinder motor shown in the upper left-hand corner of the cut on this page is an excellent sectional model of the C. G. V. motor. This is one of the leading French automobile engines having make-and-break ignition by magneto, and mechanically-operated inlet valves on one side of the cylinders, the exhaust valves being placed on the opposite side. The large fiber gears which drive the half-speed cam shafts are visible in the cut, while the gear-driven magneto is also seen on the right of the motor. All the valves are readily removable and interchangeable. The bottom of the crank case may also be readily removed for inspection and adjustment of the bearings.

The right-hand upper picture shows the new Renault motor as arranged on the 14-horse-power car. The cylinders are cast in pairs, with the valves all on one side. All the valves are mechanically operated, and the ignition is by jump spark from a high-tension magneto located in front of the motor and driven by a spiral gear. The radiator is arranged in the dashboard. It is made up of finned radiating tubes running vertically and cooled by a blast of air from blades on the flywheel, which cause it to act as a fan. Large pipes convey the water from the top of the motor to the top of the radiator, and there is also a connection from the radiator to the bottom of the water jackets. No pump is used; the water being circulated on the thermo-siphon principle.

Another type of French motor employing magneto ignition, but of the low-tension make-and-break type, is shown at the bottom of the central cut. This is the 20-horse-power Richard-Brazier motor, which also has cylinders cast in pairs, with the exhaust valves on one side and the inlet valves on the other, all mechanically operated. The inlet-valve side of the motor is shown in the cut, the make-and-break igniters being visible at the four corners of the cylinders, besides two throttles between the pairs of cylinders, connected through levers to a common rod which passes to the governor. The rod on top of the motor carries

the current to the insulated poles of the make-and-break igniters. This rod passes through fiber bushings and is covered with rubber. The large tubes from the top of the motor to the radiator, for conveying the water, are distinctly visible, as is also the vertical shaft with a universal joint and topped by bevel gears, which drive the mechanical oiler on the rear of the dash. The water is circulated in this machine also on the thermo-siphon principle.

The center picture shows the chassis of the new six-cylinder English Napier machine. This chassis was recently on exhibition in New York, and the car has been sent to Florida to compete in the Ormond races. The engine is fitted with high-tension ignition by magneto, a single coil

and contact only being used. An all-metal friction clutch of an improved type is employed, and the car is fitted with roller bearings wherever possible. It can be run on the high speed about all the time, and when so running the gears on the lay shaft are idle. The car has a 9-foot wheel base, which makes it extremely easy riding. The cylinders are cast in pairs, and fitted with mechanically-operated inlet and exhaust valves on the same side of the cylinders.

The greatest quantity of iron ore produced from one mine, in 1903, was 1,519,450 tons from the Fayal mine, on the Mesabi range in Minnesota. The greatest quantity from any southern mine was 1,231,409 tons from the Red Mountain group, in Alabama; from any eastern mine, 401,470 tons from the Cornwall group, in Pennsylvania.