

MODERN MECHANICS

SECOND EDITION



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MAKING MAGIC IN MECHANICS

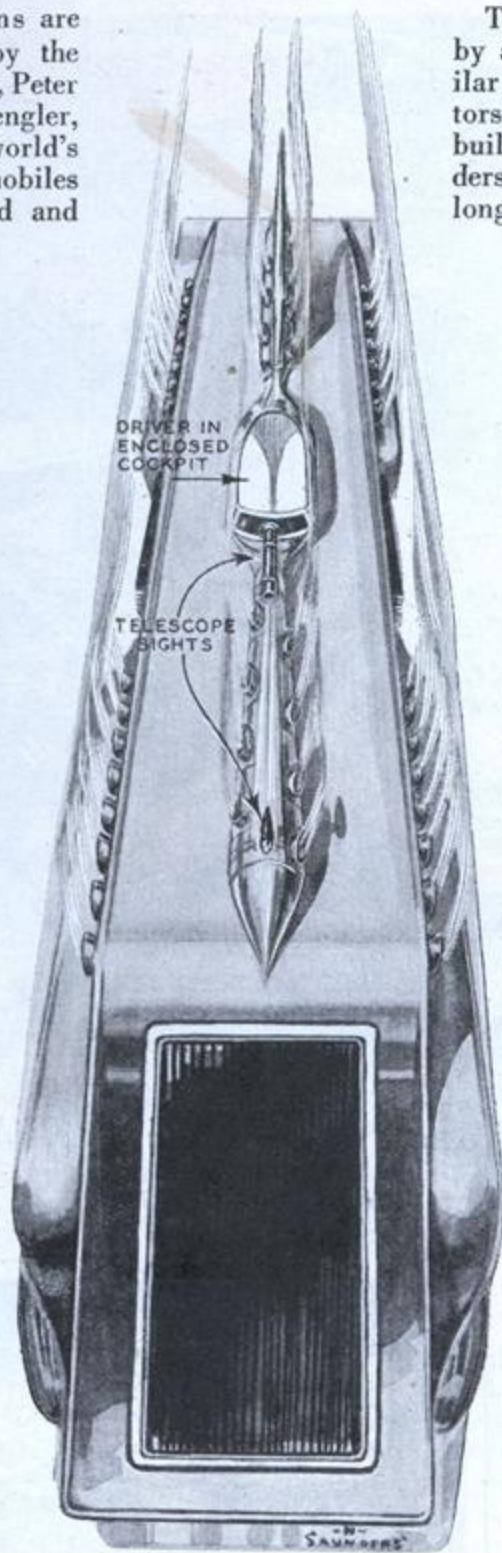
HUGE Race CAR to Try

ACTIVE preparations are now being made by the well-known racing drivers, Peter De Paolo and Harlan Fengler, to restore to America the world's speed record for automobiles now claimed by England and established by the late Major Segrave in 1929 at Daytona Beach, Florida. The present record stands at 231.36 miles an hour. Two Americans, Frank Lockhart and Lee Bible, have lost their lives on the sands of Daytona Beach while attempting to lower this record.

The power plants for the monster juggernaut now being built in Los Angeles are probably the most powerful unit of gasoline motors ever built. One of these motors on a dynamometer test developed 1302 horsepower at 2600 revolutions per minute.

The motors are "Triplet-eights," similar in design to the "Twin-eight" used in a well-known automobile, with an additional bank of eight cylinders mounted vertically along the center line of the crank-case—24 cylinders in all. The bore of the cylinders is 5" and the stroke 6½", giving a total displacement in each motor of 3755 cubic inches.

Twelve carburetors supply the gas mixture—a carburetor for each two cylinders. Each cylinder has dual ignition; six distributors, twelve high-tension coils, and 48 spark plugs are utilized in the ignition of each motor.



Here is a front overhead view of the "Miss Los Angeles" as it will appear when completed. A telescopic sight will be placed between the front exhaust pipes so that the car may be "aimed."

The valve action is operated by an overhead cam-shaft similar to the war-time Liberty motors—in fact, these motors are built up with "Liberty" cylinders. To overcome torque in the long cam-shafts, they are gear-driven from both ends.

Each cylinder is fitted with an individual exhaust pipe. The accompanying photograph shows the exhaust pipes fitted to only one bank of cylinders.

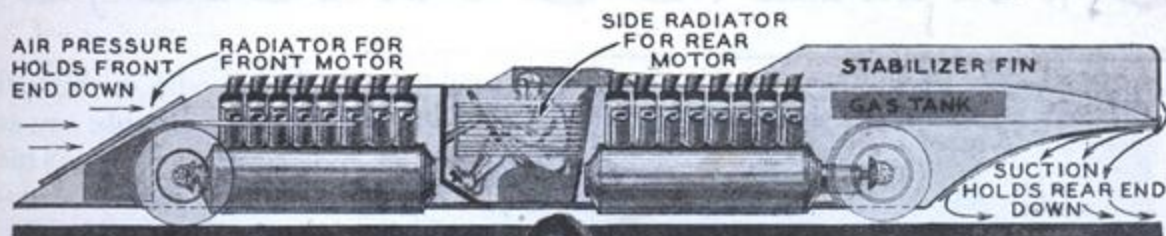
With 1300 horsepower delivered at one end of the crank-shaft, it is obvious that the shaft must be of massive design. The diameter of the main bearings is 3¾", and the shaft weighs 400 pounds.

The radiating surface of the cylinder walls is many thousands of square inches, so a huge volume of water must be circulated through the cooling system. The water pumps circulate 250 gallons a minute.

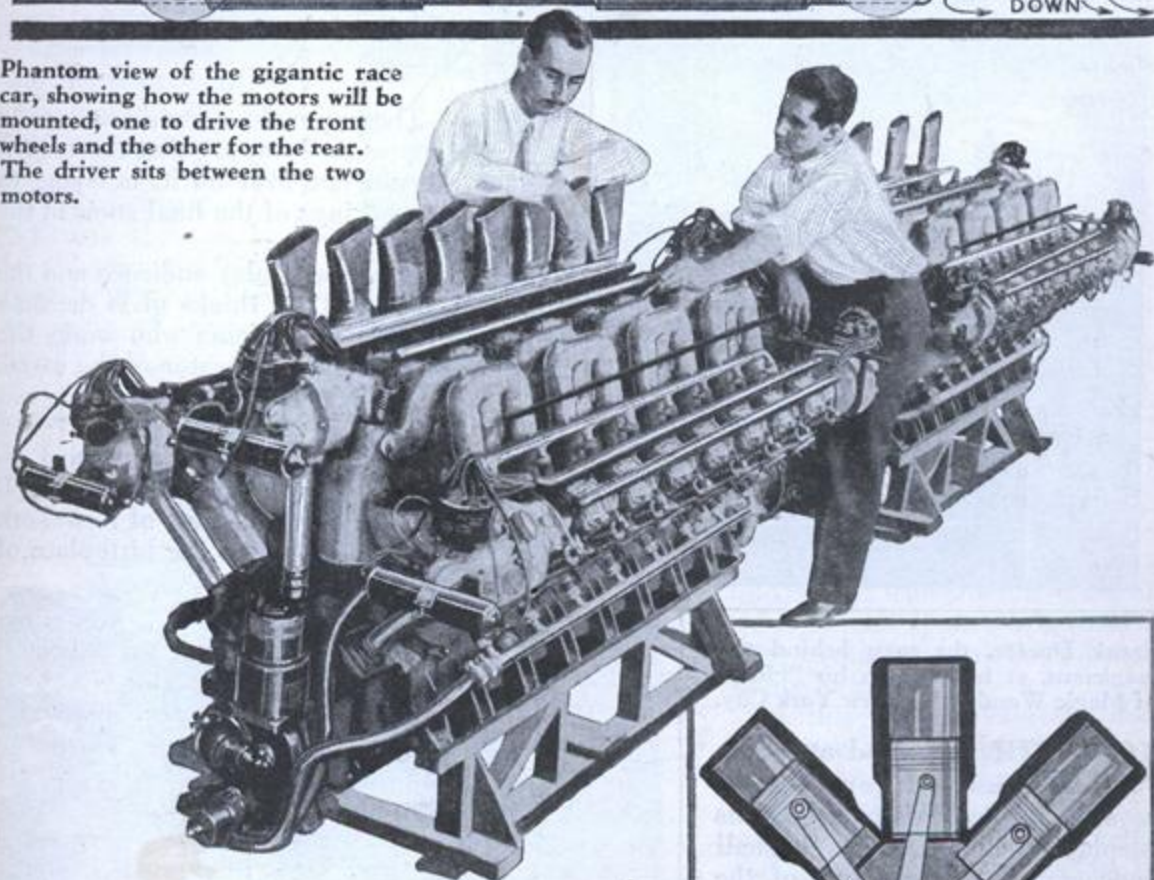
These huge motors are to be mounted in the chassis frame now being built, as shown in the sketch. One motor drives the front pair of wheels and the other the rear pair, with the driver's compartment between them. The forward motor is directly connected to the front wheels without clutch or gear-box. A clutch and gear-case with three forward speeds and reverse are interposed between the rear motor and the wheels, the forward motor being switched on after the car is in motion.

The body design dif-

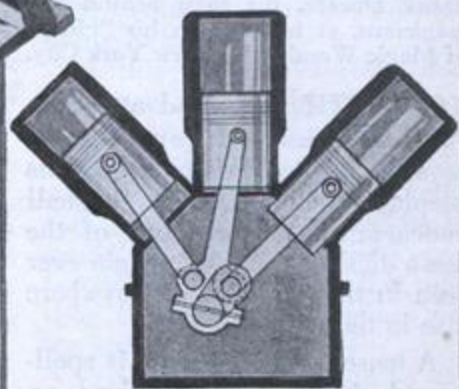
for 300 Miles an Hour Speed



Phantom view of the gigantic race car, showing how the motors will be mounted, one to drive the front wheels and the other for the rear. The driver sits between the two motors.



Here is a view of the two 24-cylinder motors which will drive the "Miss Los Angeles" at an estimated speed of 300 miles an hour. The exhaust pipes are not yet mounted on the side banks of cylinders. Each motor develops about 1300 horsepower, making them among the most powerful gas engines in the world. To the right is shown how the connecting rods are hooked to the crankshaft.



CONNECTING ROD ARRANGEMENT

fers from many other speed juggernauts in that it is not radically streamlined. Rather than seeking to reduce wind pressure to a minimum the air pressure is used to push and suck the car to the ground and provide more positive traction.

The front of the car looks like a snow-shovel tractor, the force of the air against the inclined front pushing the front end of the car down. The under side of the rear of the body is dished out, and a powerful suction is created to hold the rear end of the car down.

The gear ratio between the motors and the wheels is 1 to $1\frac{1}{4}$; in other words, the wheels turn a quarter faster than the crankshaft of the motor. At 2600 r.p.m. engine speed the wheels will turn 3250 r.p.m. Fitted with 36-inch tires, this represents a circumference velocity of 514 feet a second—350 miles an hour. In actual practice, however, the theoretical figures are cut down due to slippage. Nevertheless, the builders are confident of smashing Major Segrave's record by a wide margin—maybe 300 miles an hour.