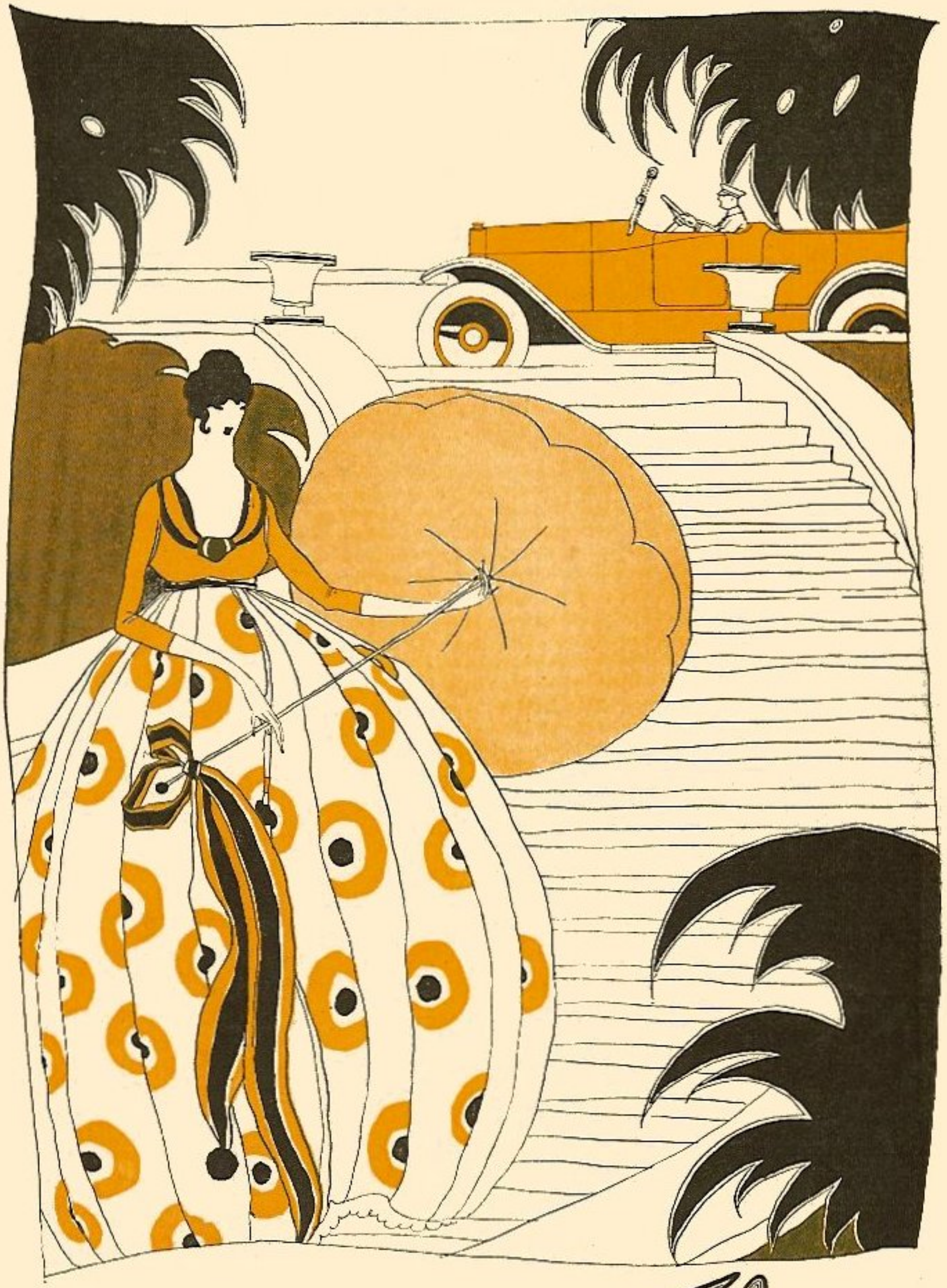
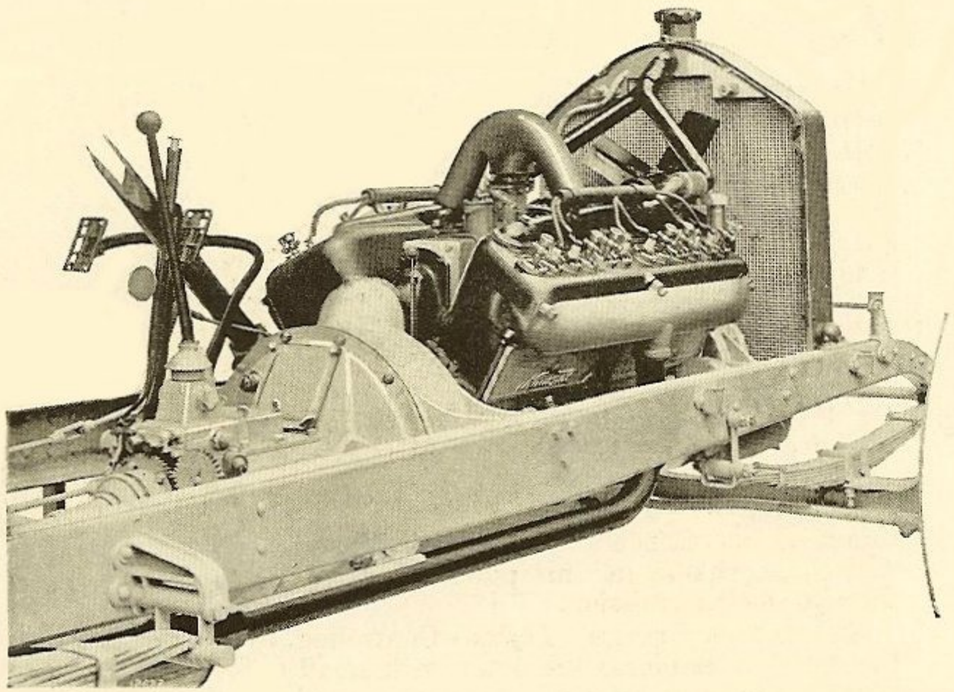


National

HIGHWAY

12

THE TWELVE CYLINDER CAR



National Twelve Cylinder

The National twelve-cylinder motor was designed and developed by the National company. The National company built the first stock American-made six-cylinder cars, also the World's Stock Champion four-cylinder motors. The National twelve-cylinder motor is "V" type, with six cylinders en bloc at an angle of 60 degrees, on each side. The bore is 2¾ inches, the stroke 4¾ inches, giving a piston displacement of 338 cubic inches. Full 70 horsepower, or any part of it, is developed without vibration or strain.

By having two sets of six cylinders operating on the one crank shaft, there are twice the number of power impulses per revolution. This design gives a wonderful range of acceleration, combined with an almost complete absence of vibration at all speeds. Connecting rod bearings of opposite cylinders are placed side by side on the crank shaft. This insures perfect lubrication and permits easy bearing adjustment.

The crank shaft is of large diameter, so as to hold everything rigid. It is supported by three large main bearings.

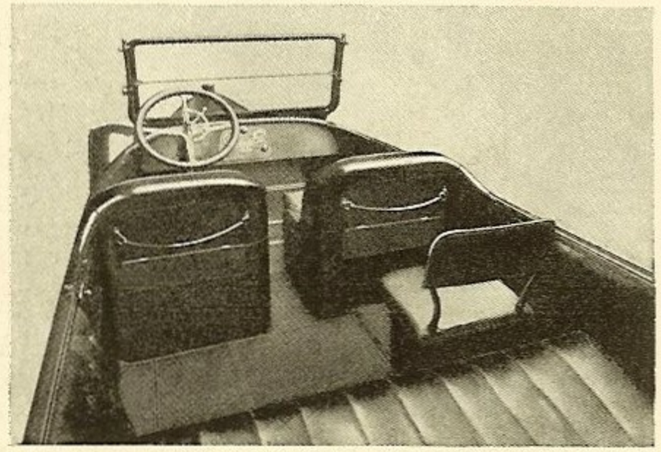
With the National Highway Twelve motor the matter of accessibility, the main objection to other "V" type motors, has been properly taken care of.

All valves are located on the outside of the cylinder blocks and are therefore as accessible as the valve of any Six.

National Twelve lubrication is by a positive high pressure feed system, which forces the oil through the hollow crank shaft and via leads to all bearings.

The oil is under a 15- to 25-pound pressure for normal running. A gauge on dash shows at all times the correct operation of all oiling.

Highway Twelve Specifications



CARBURETOR—One carburetor supplies both cylinder blocks, located between the cylinders, where it is kept dry and warm. Gasoline feed by vacuum system from 17-gallon tank on rear of car.

IGNITION—High-tension magneto.

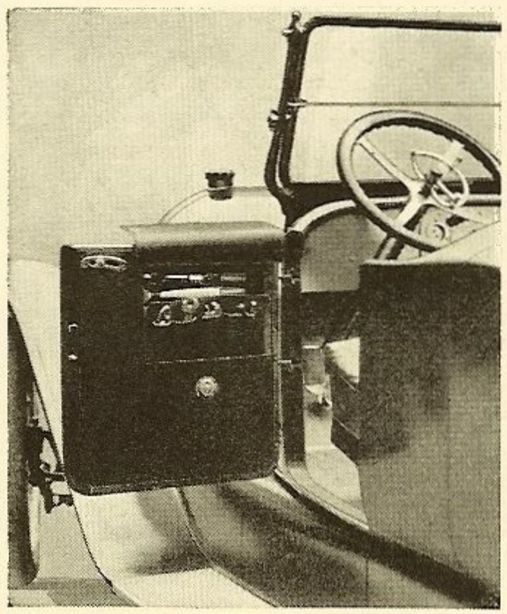
CLUTCH AND TRANSMISSION—Cone clutch combined with transmission in unit power plant; annular ball bearings throughout transmission.

ELECTRICAL SYSTEM—*Lights*—Controlled by one switch on the dash. Headlights are fitted with small bulbs for dimming. Lighting system is entirely automatic. Westinghouse system. Dynamo is separate from starter motor. Battery concealed behind running board splasher. *Starter*—Westinghouse system of separate units. Starter motor geared to fly-wheel.

AXLES AND BRAKES—*Front*—I-beam, steel forging. Large adjustable roller bearings in hubs. Ball thrust bearing at top of steering knuckles. *Rear*—Full-floating axle, with large roller bearings. Driving pinion and ring gear have spiral cut teeth.

Brakes—Two sets, size 15 x 2.

WHEELS, FRAME AND SPRINGS—*Wheelbase*—128 inches. *Tires*—Size, 34 x 4½. Option of United States, Firestone or Goodrich. *Rims*—Firestone demountable. *Springs—Front.* Semi-elliptic, length, 38 inches. Fitted with Hartford shock absorbers. *Rear.* National (flat) cantilever. Length, 51 inches.



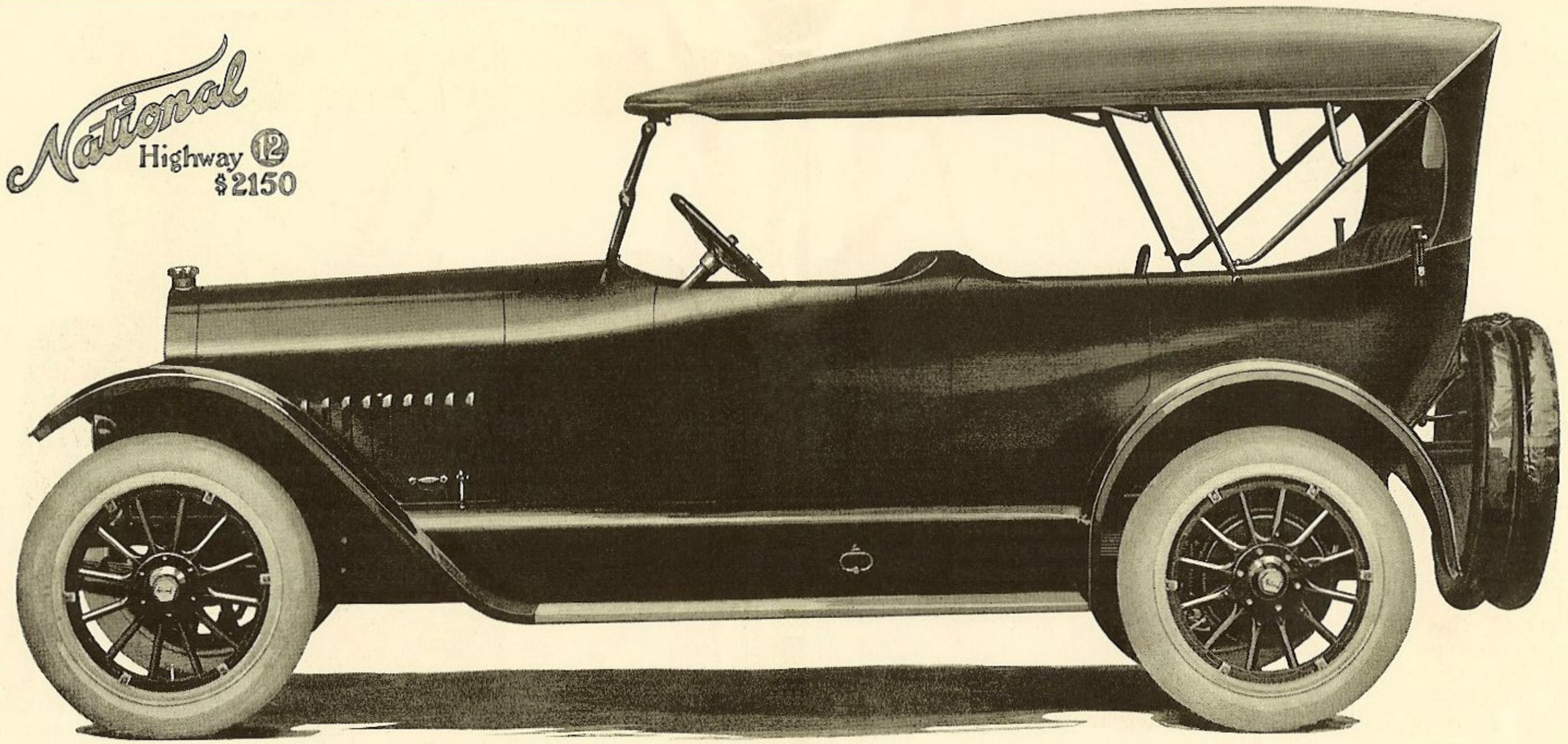
EQUIPMENT—*Top*—One-man top made of "Never-leek" waterproof material. Side curtains open with the door. Ventilating and rain-vision type of windshield. Speedometer, Warner. Horn, electric. Hartford shock absorbers in front. Tire pump mounted on motor. Full complement of tools.

COLOR—Option of Highway Blue or Highway Grey.

PRICES

Highway Twelve Touring Car, 7-Passenger	$2150
Highway Twelve Touring Car, 4-Passenger	2150
Highway Twelve Clover-leaf Roadster, 4-Passenger	2150
Highway Twelve Touring Sedan (Springfield type), 5-Passenger	2750
Highway Twelve Coupe, 4-Passenger	2800

All National Cars Are Priced and Sold f. o. b. Indianapolis. Prices Include All Equipment.



National Highway Twelve-Cylinder Touring Car Seven Passenger *$2150*

The power of a gasoline motor is explosive and therefore intermittent. Automobile engineers tried for a long time to find some way to take the intermissions out of gasoline. They wanted to make a smooth, even, flexible power out of gasoline—a power that would flow instead of throb, and a power that would not tear up the machinery by which it was created.

In the National Highway Twelve this ideal has been attained. The ideal is fairly well attained in the six-cylinder car, but there are several reasons why the Twelve is better than the Six.

The crank shaft of the six-cylinder motor gets three propulsions every time it turns over—three shoves to every revolution. This seemingly would give a smooth flow of power, and it would if it were not for one thing. The cylinders of a six-cylinder motor are large. They have to be large in order to manufacture a good volume of power. When one of these cylinders gives the crank shaft a shove it is a very vigorous shove.

The Twelve motor gives its crank shaft six shoves to every revolution instead of three. The balance of power application becomes almost perfect. The cylinders are smaller than in the Six, so that the explosions are less terrific.

There is more brain work in the Twelve and less brute force. The application of power is "persuasive" instead of violent.

This more constant application of power eliminates vibration in the National Twelve motor. It is possible, therefore, to construct the motor of lighter materials.

Automobiles heretofore have been their own worst enemies. In the National Highway Twelve self-destructiveness of motor cars comes to an end. A vibrationless motor not only means a long-lived motor; it means a long-lived car.

The National Twelve is the most accessible of all "V" type motors, the valves being on the outside of the "V" instead of down in the middle, as in most multiple-cylinder cars.

One carburetor supplies an even mixture to both sets of cylinders. It is located in the middle of the "V" in the way of nothing, and is easily reached. In its position it stands high, dry and warm at all times.

Ignition for the National Highway Twelve is furnished by a high-tension magneto. Magneto ignition has been generally admitted to be superior to any other type, but prior to the National Twelve all motor cars of more than six cylinders have depended upon batteries altogether. The National Twelve is the first car of more than six cylinders to use magneto ignition.

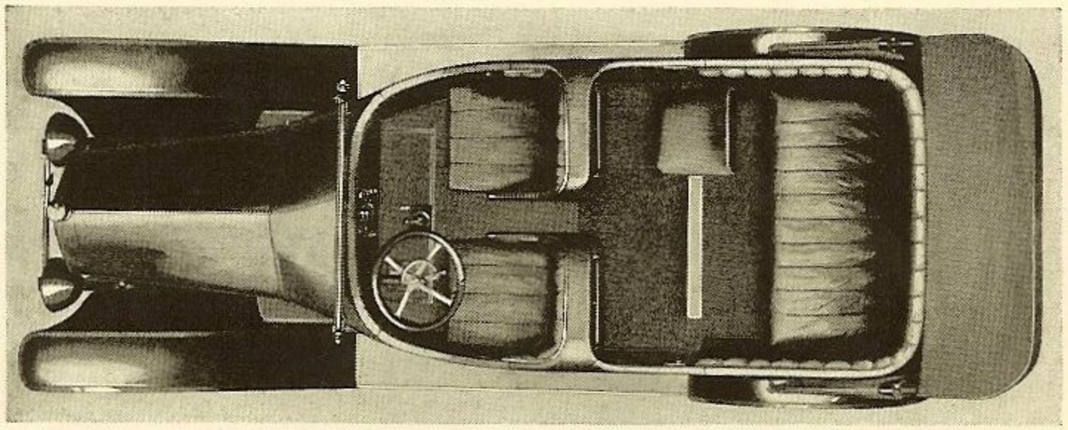
National Pride Is Justified

There are millions of automobiles that look pretty much the same. You can take the first ten cars of which you think, in the "thousand-dollar" class, for instance, and the difference in their appearance will be minor. And any one car that you think of will be different from year to year. There are very few automobiles that have a consistent, lasting, recognizable personality. Automobiles are much like people in this respect: there are lots of them and very few that stand out.

The National car acquired the keynote of its character in its early racing days. Every individual National car is somewhat reminiscent of the race track. The lines of this latest National Highway Twelve are lines that bespeak good, blue-blooded breeding. They give to the National car a look of strength and cleanliness and aggressiveness that no other car begins to possess.

There are other high-class cars, to be sure, but in none of them is correct, thoughtful design combined with unmistakable evidence of a fighting ancestry. It might be said that the National seems not only aristocratic, but *athletic*.

The National Highway Twelve has many desirable conveniences, some of which are found in many high-grade cars at this time and some of which are exclusive with the National company. Aisle-way front seats, which the National company has used for three years, throw the car into one comfortable, livable room, provide a separate seat for the driver, afford perfect ventilation for the front and rear compartments, and make the "one-man" top true to its name.



Highway Twelve Seating Arrangement
Note the ample room and the deep comfortable seats

Many New Improvements

This new series of the National Highway twelve-cylinder cars marks the introduction of the second year of National twelve-cylinder cars.

These cars are now doing daily service in every state in the Union. They do things; do them differently from other cars; extraordinary things.

National, builder of America's first stock Sixes, was proven correct by time. National, pioneer of the Twelve, has again been proven correct by time.

National car sales increased over 300 per cent last year. Merit did it.

On this new series several improvements have been made. Most notable among these is the increased luxury and beauty of the seven-passenger body.

Among the additions and improvements are:

Body that is larger in every dimension.

Carrying capacity increased to seven-passenger.

Folding seats now disappear and are completely covered when folded.

Two neat locked package compartments have been added. These are in the tonneau in the backs of the front seats.

The doors are set flush, thus giving smooth body sides.

The windshield is placed at an angle, affording a more rakish appearance—decreased wind resistance and the elimination of all annoying reflections.

A lock has been provided for the ignition and for the lights.

There are now special door frames for the side curtains, which permit the curtains to open with the door.

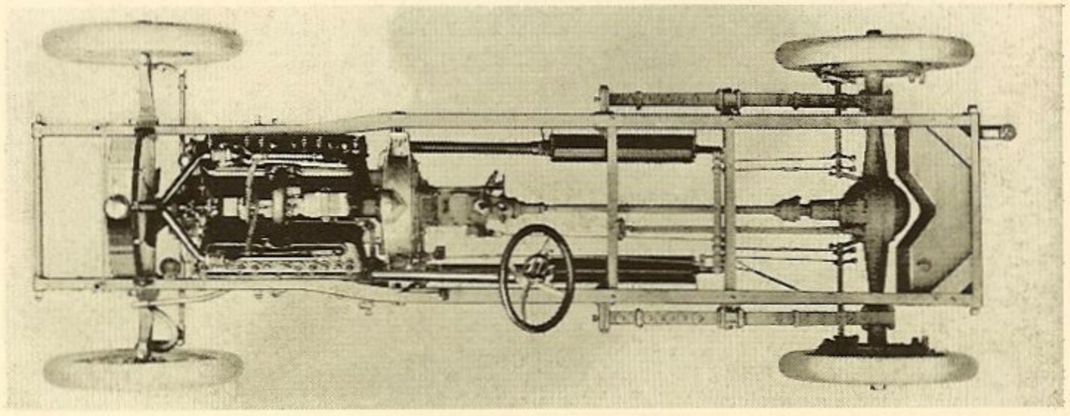
A new type tire holder not only permits the carrying of two tires, but holds tires rigid with the use of only one strap.

The gasoline filler cap is located to the extreme right alongside the fender, making it easier to fill the tank. This new filler cap has been provided with a hinge, making it impossible for the cap to be misplaced.

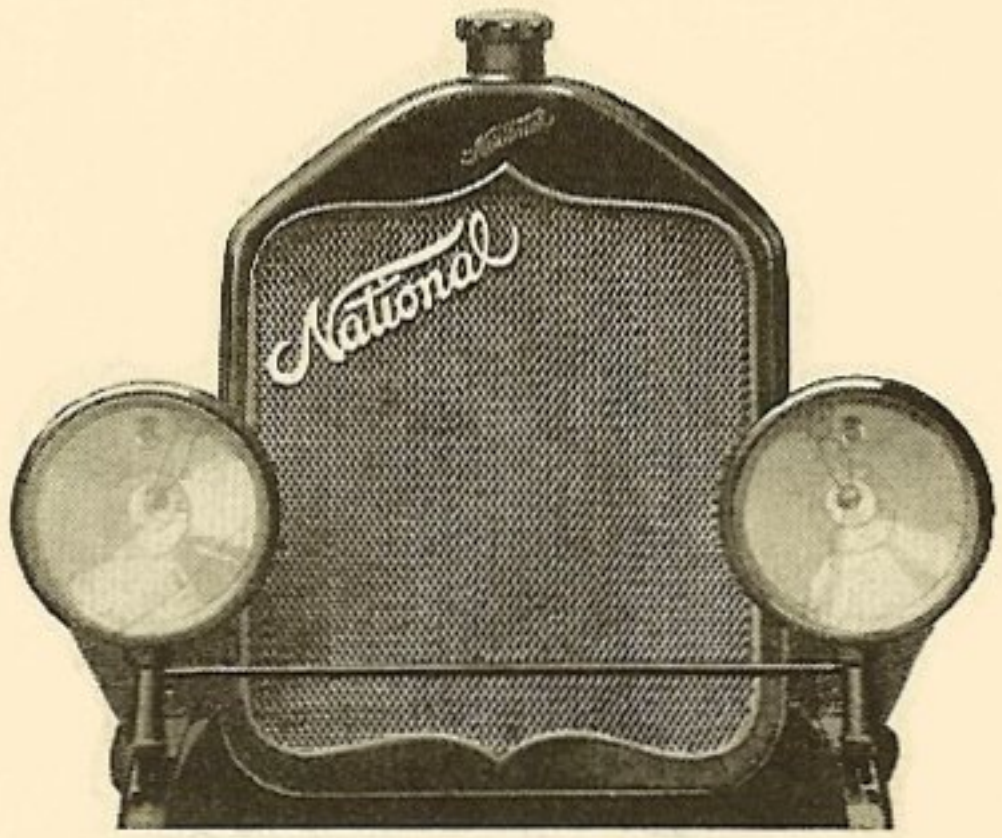
The radiator retains its characteristic National design, but it has been made higher and narrower to conform with the improved body styles.

The fenders are one inch broader.

Option of two colors—Highway blue or Highway grey.



Highway Twelve Chassis
Note the sturdy, solid construction throughout



The Meaning of a Radiator

The National radiator is a symbol. It is full of story and significance, just as the escutcheon of a good old family is full of meaning. Many years ago the National company adopted a distinctive radiator design so that in time it would come to mean something to the people.

You can tell a National radiator coming down the street a block away. The front of the National radiator is like the front of no other radiator in the world.

And this is what it means:

The National Motor Vehicle Company has been building motor cars for sixteen years. This makes it a pioneer in the automobile field. The National company was one of the first to start.

All of this time the ownership and management of the National company have remained the same. Many of the department heads and factory foremen have been with the company since the beginning. The National company is almost old enough to have a right to a family seal—as automobile companies go. The National company is a big, reliable, steady organization with a large, modern, well equipped factory. It is a company financially strong, operated under consistent and conservative policies. and enjoying a high credit rating.

The business man who takes the "manufacturer behind the car" into consideration when making his purchase will be made comfortable in his selection of a National by his knowledge of the strong solidity of the National company. It will assure him of the manufacturer's continuous concern in regard to the operation of his car.

The development of the National car has been slow and scientific. No sporadic, mushroom improvements are made over-night for the mere sake of sales impetus. The same conservative principles the business administration of the National company prevails [illegible] factory.

That is what the National radiator means—[illegible] family pride and business pride out at the National factory. It is a symbol of success.

NATIONAL MOTOR VEHICLE COMPANY

INDIANAPOLIS, INDIANA

Sixteenth Successful Year