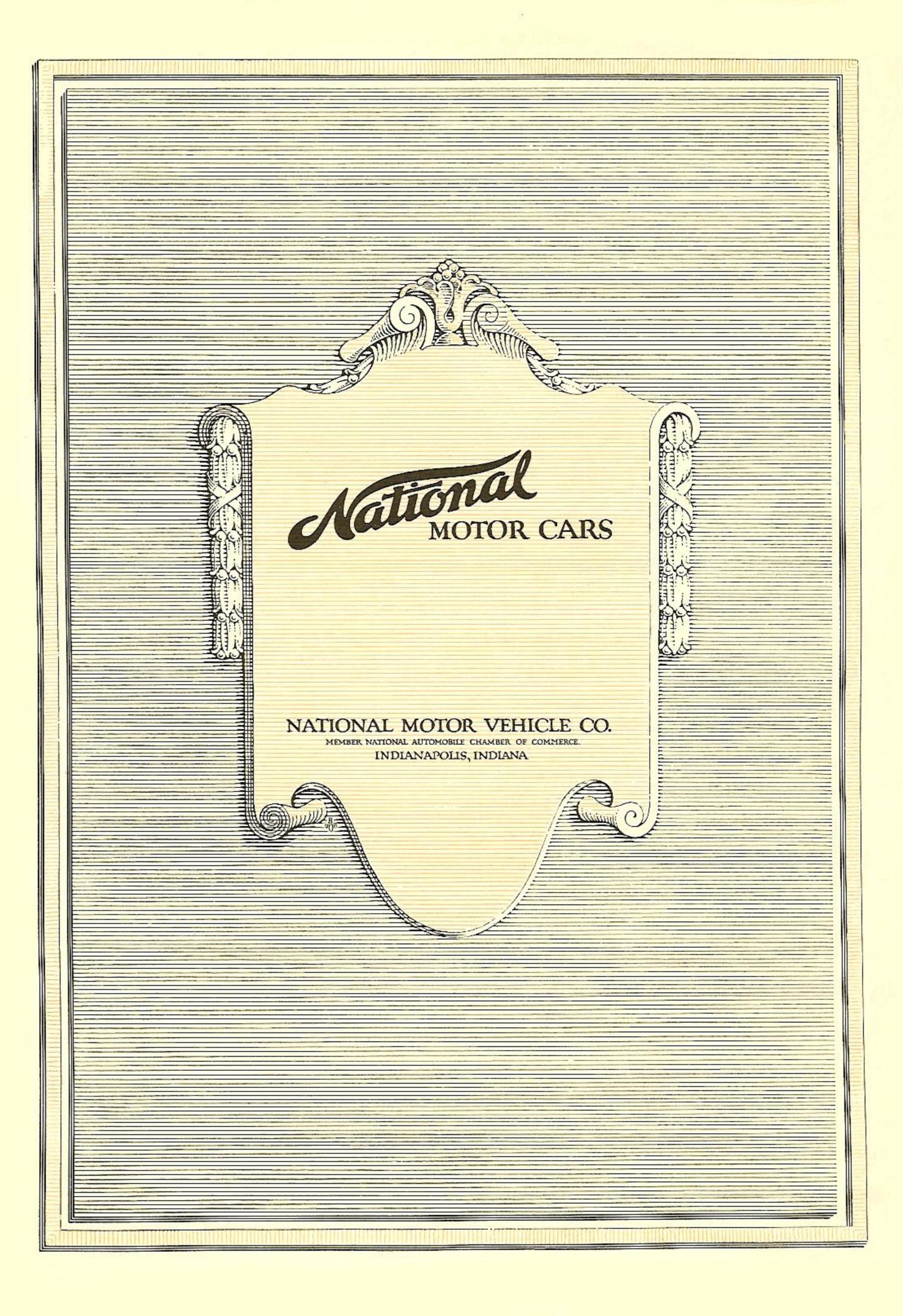


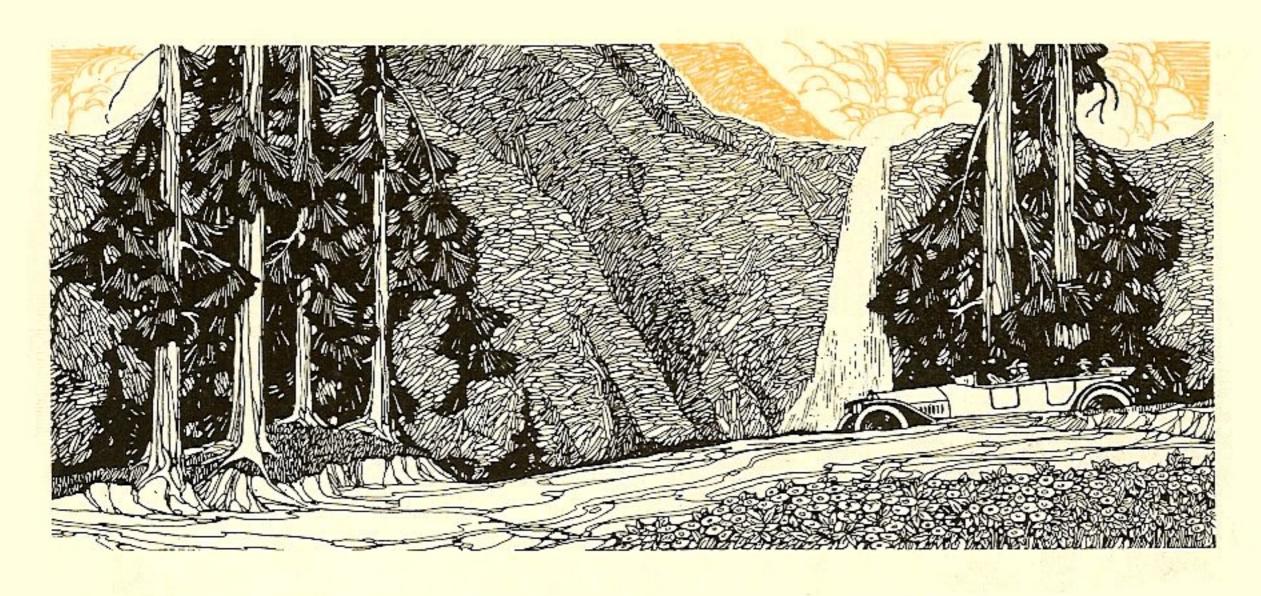
ngorp



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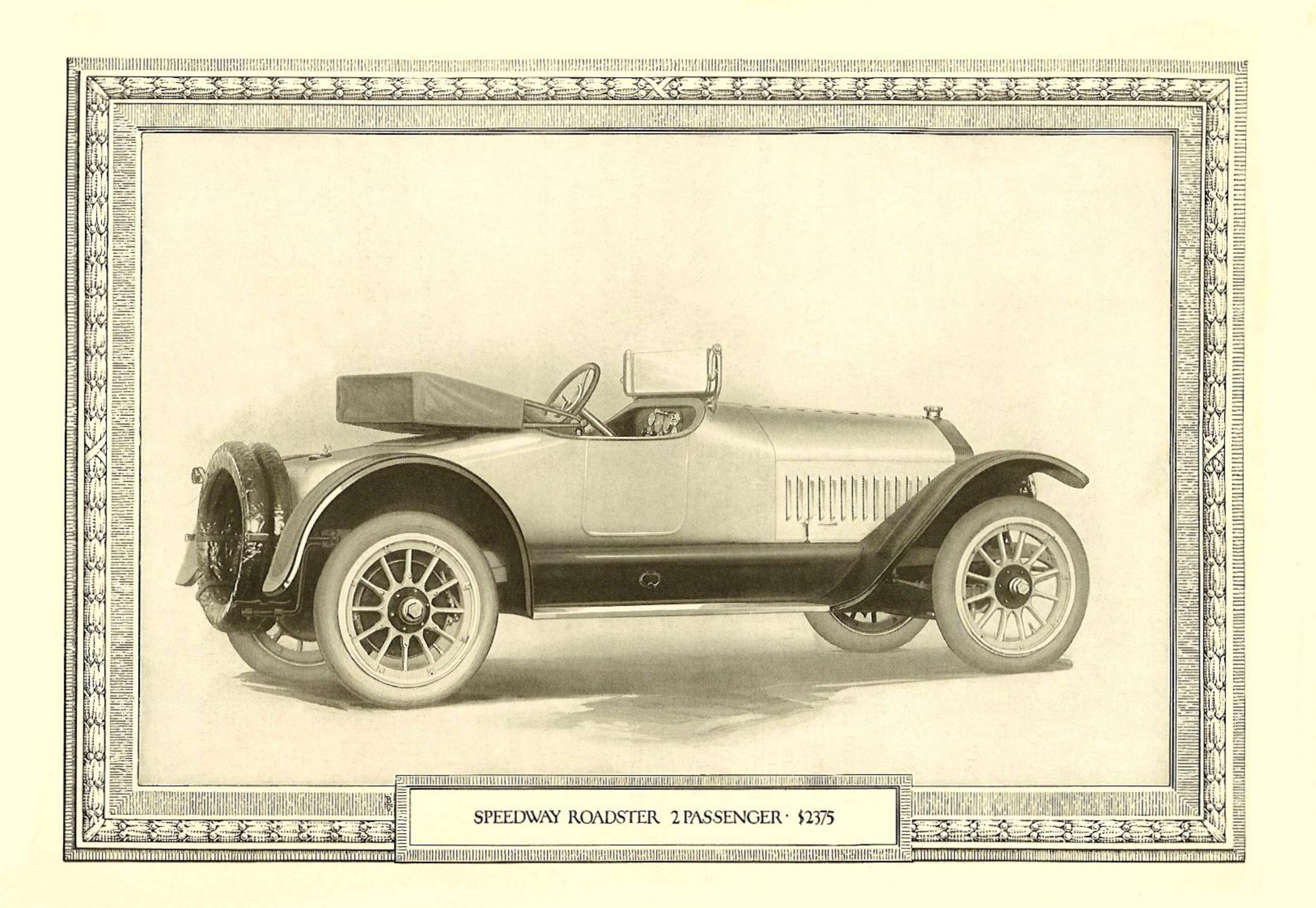
Discretion in Selecting a Car

NY one buying an automobile to-day does not have to ask whether or not the wheels will go 'round. The wheels will go 'round. Automobiles run, to-day. It would be as difficult now to find a really poor automobile as it was ten years ago to find a good one. Ten

years ago it was not impertinent to ask if the car would run, and it was well to be something of a skilled mechanic if you would know certainly whether or not the car you were about to buy had inherent locomotive possibilities.

To-day, discretion about motor cars must be much finer. Questions must be more than mechanical. It is to be taken pretty well for granted that almost any car will run, so your consideration must cover more subtle points.

There is the gross and apparently irrelevant question, for instance, as to the standing of the manufacturer. This has little to do with automobile machinery, but it is one of the wisest things to think about in buying a car. An automobile shows its breeding. It tells you in its face and in its manners what kind of family it came from. It can not be any better than the factory behind it.

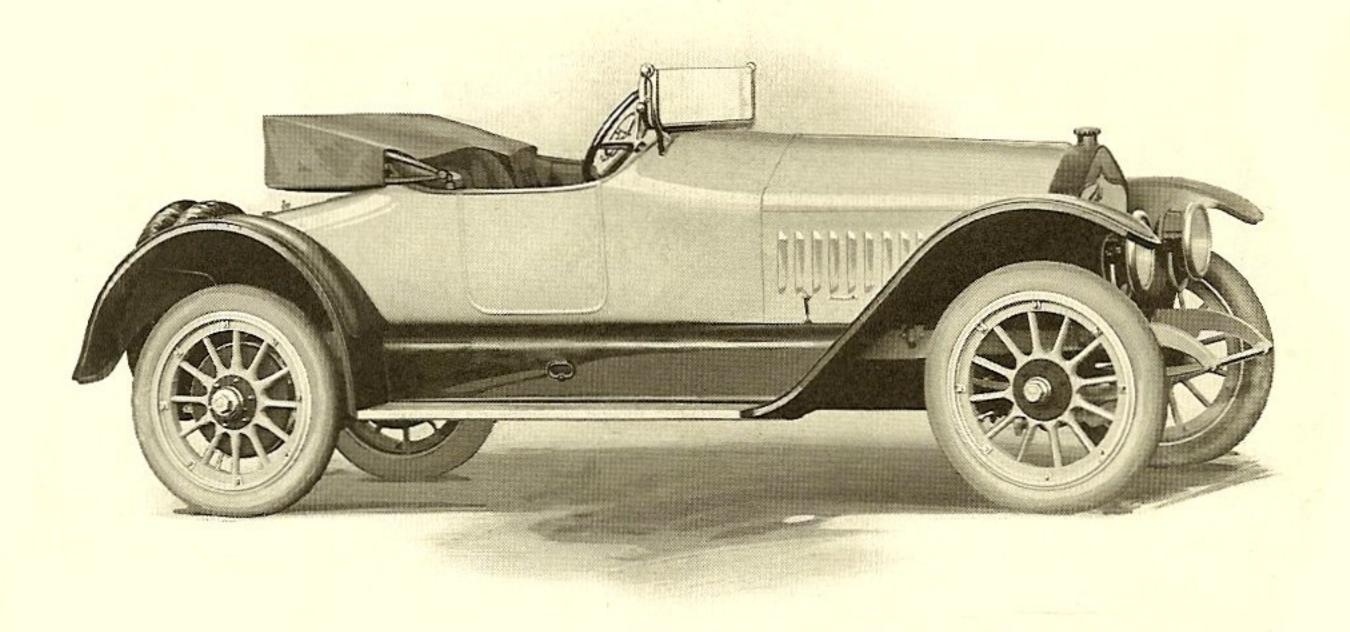


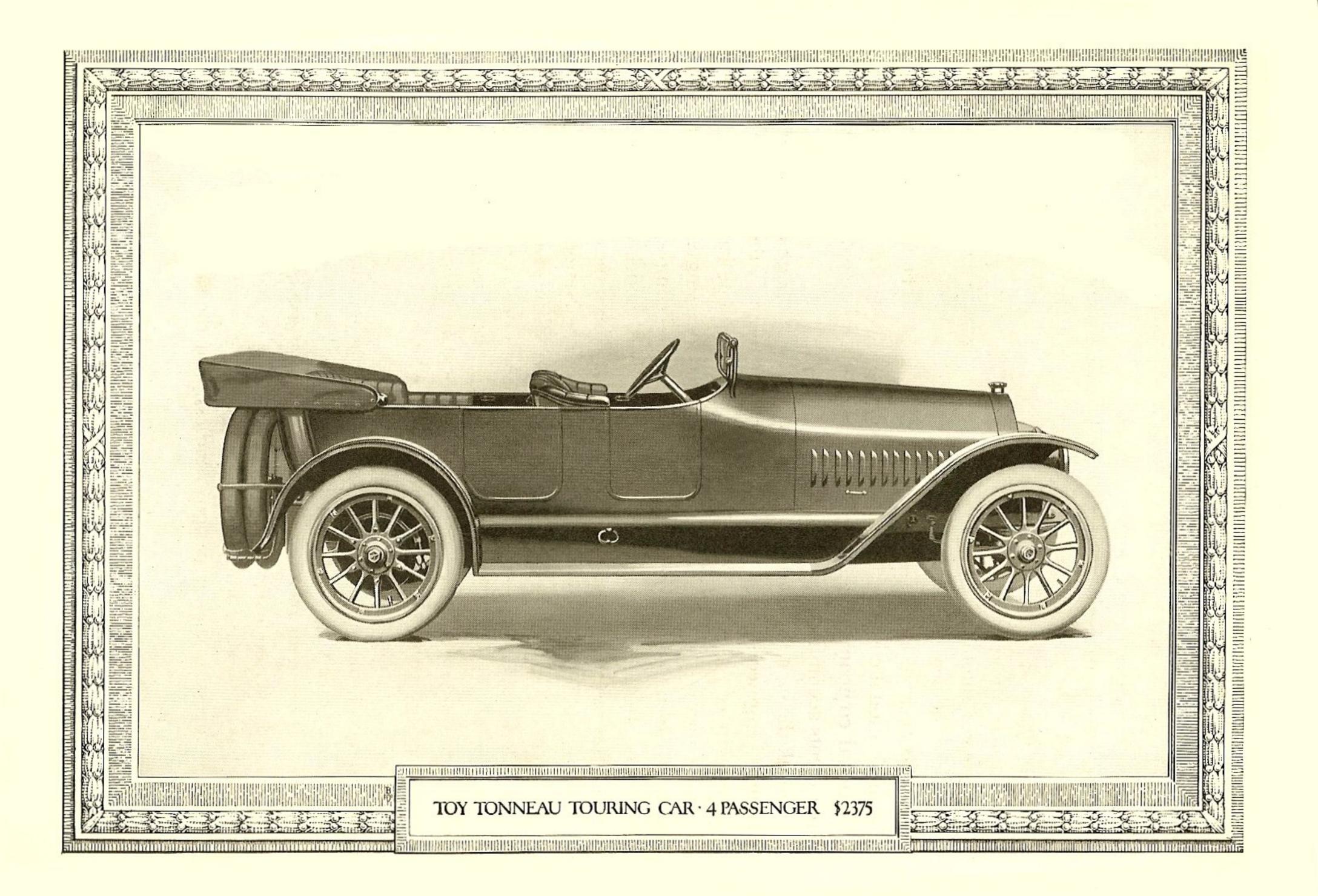
There is the abstract question of beauty. An automobile is one of the most personal of possessions, as personal, almost, as haberdashery or millinery. If the car is to last a number of years, there must be elements of classicism in its design—beauty which will endure and stay good in spite of saneless style-changes, made for sales impetus or some other ulterior motive, among the general run of cars.

There is discontentment in the possession of an old-fashioned automobile, and criticism of your car rightly touches your deepest sensibilities. Not only this, but a car out of style suffers an actual depreciation in commercial value.

Comfort, too, may as well be had as not, when you are buying a car. Locomotion is pretty well assured in many makes, so none should be taken in which parlor-like comfort and utmost ease in riding are not to be found. If a house will keep you dry, there are a hundred other points of livability about which you should think.

The man who buys an automobile must do, first of all, a sensible job of marketing. He wants to spend a certain correct amount, and knows full well that he can not safely expect style, comfort and distinction in lower-priced cars. Yet he does not want the car he chooses to bear a price falsely inflated for trading purposes or for any other reason. He realizes that automobiles are divided plainly into price classes, but





wants to be sure that he is getting metal for his money—real automobile metal for every metal dollar he invests.

It will not hurt to take up further these various points for discretion in the selection of a car, and to ask how the National meets each of these points.

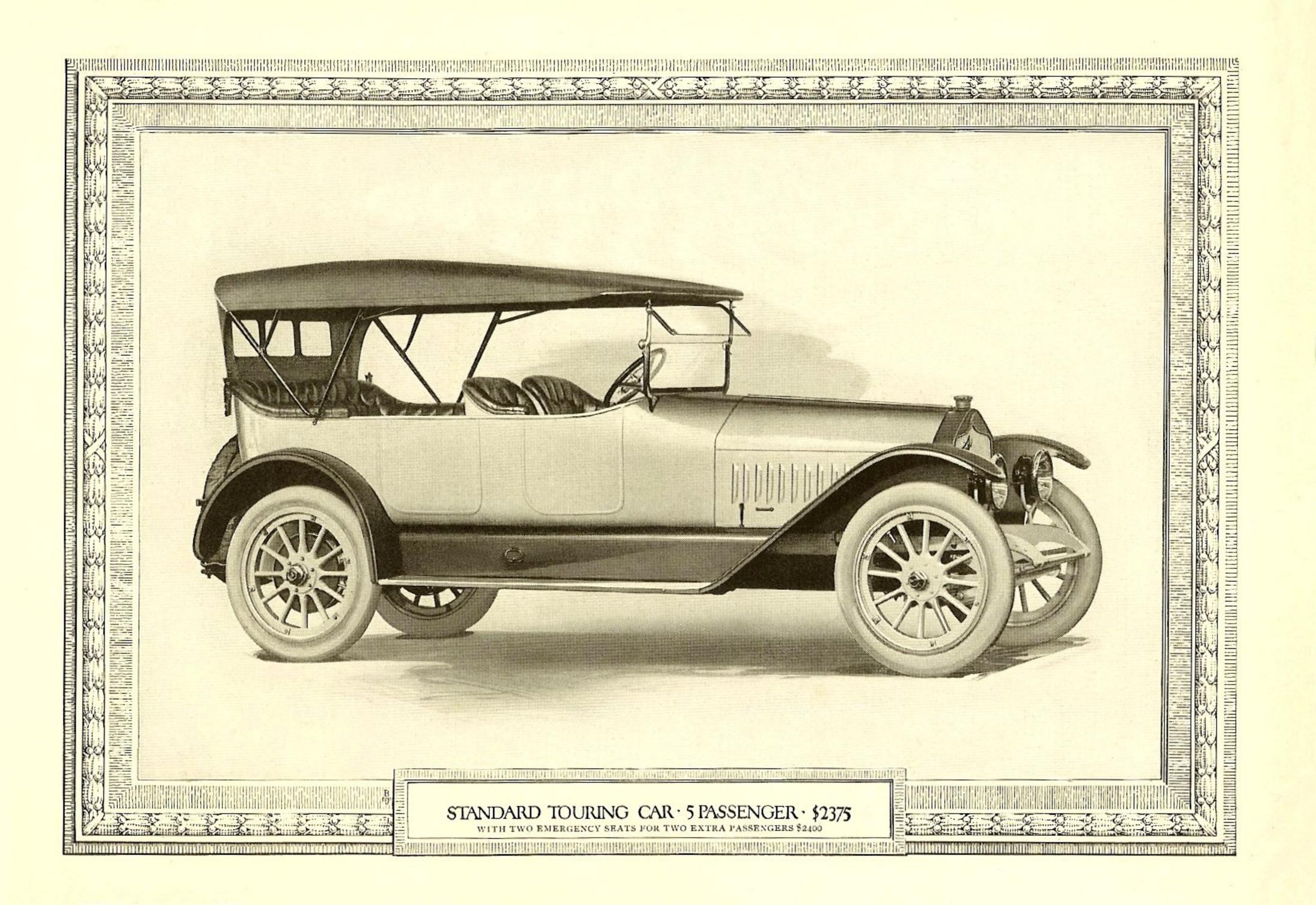
Character of the Company. The National car is from one of the fine old pioneer automobile factories. For fifteen years, which goes back almost to the beginning of the automobile industry, the National factory has been an active and successful institution. The management of the National company to-day is the same as the management of the National company fifteen years ago. So every National car to-day represents accumulated knowledge.

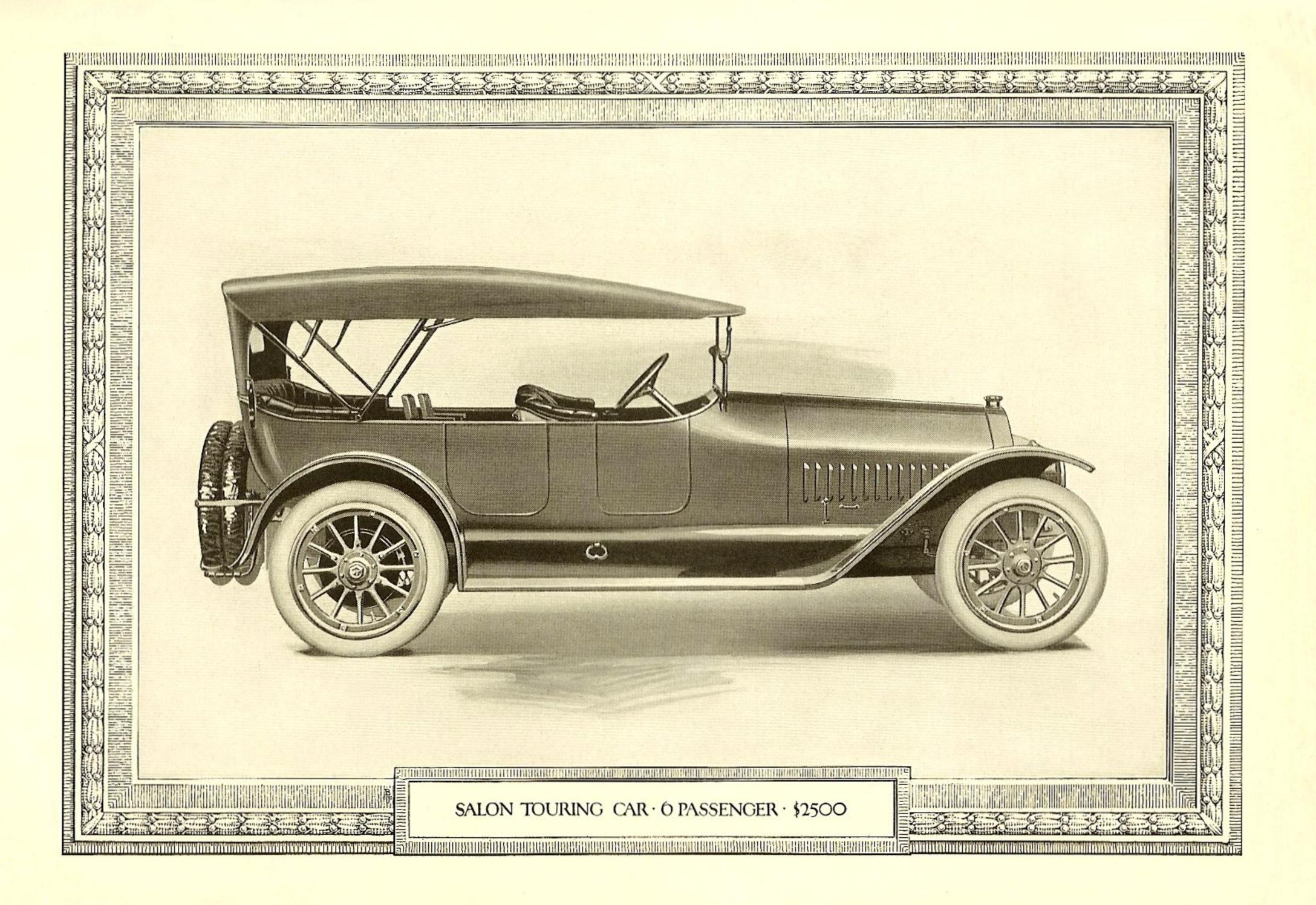
Speak the name of National in any nation upon the globe, and mechanical engineering experts will acknowledge instantly the worth and superiority of the National car. This universal tribute has been won not through chance, but by steady adherence to a single ideal. For fifteen years it has been the purpose of the National company to evolve a perfect car. You may trace a lineal likeness in all models of National cars. This shows that the central idea has always been the same.

There is fight in the blood of National cars. The National of to-day is a direct descendant of the World's Stock Car Champion and of the 500-Mile Race Champion among "Made in America" cars.

Appearance of the Car. National cars, in their design, have followed no vogue. There is a possible correctness and elegance in automobile design, as in all other artistic fields, which is quite apart from any passing style and quite independent of it.

Automobile manufacturers have shown a tendency, due probably to the comparative youth of the industry, to fly wildly from one style to another. The buyer of a car this year finds his purchase very much antiquated a season hence. Automobile style has lacked substantiality. There has even been an unpardonable disposition on the part of some manufacturers to change designs needlessly for the sake of sales im-





petus; National advancements are evolutionary rather than sporadic. The same thing that is characteristic of the National company itself, and of the working machinery of the National car, is evidenced also in the design of the National car: *substantiality*. Thus conception and structure and outward appearance are all one.

There is a certain smartness about National cars which tells of the fighting and racing strains in National blood. National cars seem more lithe and more aggressive than cars of absolutely conventional design.

Riding Comfort. Comfort, also, is reckoned within the initial conception of the National car. It is provided for in every dimension; it dictates the very design of the car. And even back of design, comfort is thought of—in such matters as balance of weight, and spring construction. Luxurious upholstery is an excess nicety, and not a substitute for something more fundamental. National cantilever springs absorb all jolts and bounces, and level all roads.

To ride in the National is to enjoy drawing-room comfort on wheels—to go out into the highway in your library chair. To imagine motoring with all the comforts of home is one thing; to find a car whose performance will conform with your desire is another.

Price Position. The National is meant to fill a correct station between excessive cost and inferior quality. It may be said, perhaps, to be the best possible car, immediately before you cross the line into the extravagance class.

The buyer is often prevailed upon to purchase a certain make simply because a dealer will allow him a seemingly liberal sum for his old car; yet he will find upon investigation that there are any number of cars to-day listed at inflated prices for just such trading purposes.

All Nationals, even those old in service, have a recognized value. This is a positive indication that the original price represented intrinsic worth. No fee is demanded for reputation. The National car is metal for money.



Various National Models

Roadster. There is something somewhat warlike in the appearance of the National Roadster—something suggestive of protective armoring and of inborn belligerent power. Perhaps this army appearance comes naturally to the National after a long life of victorious fighting on race courses.

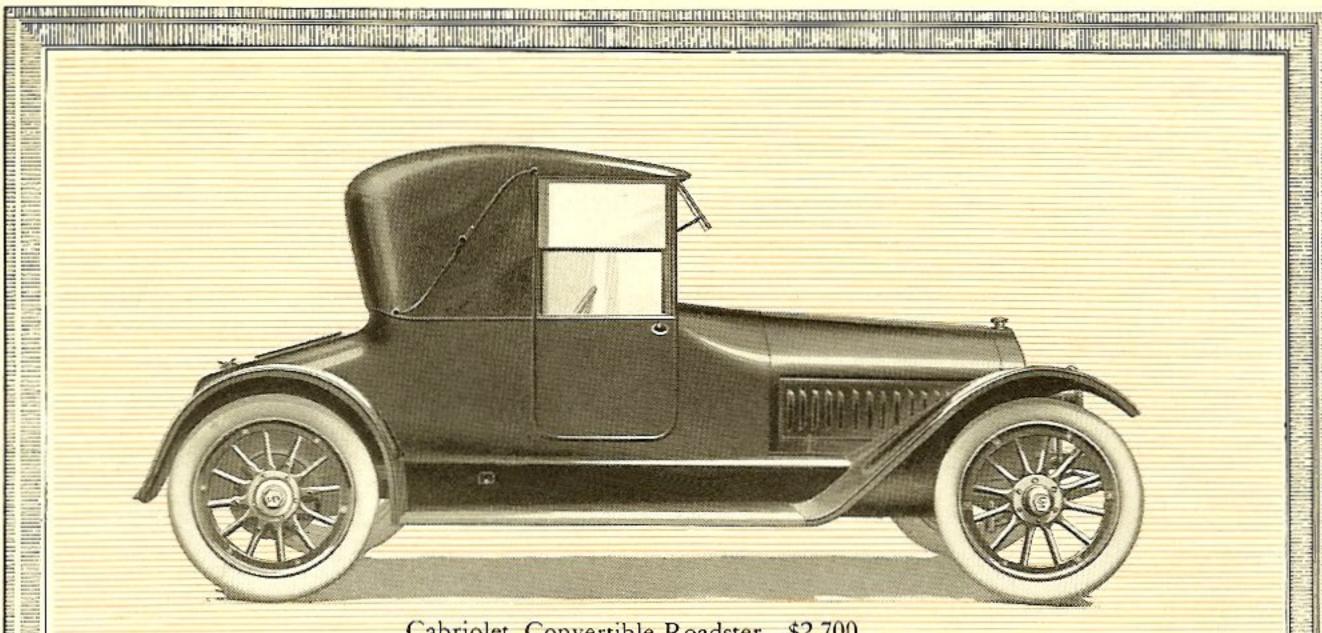
A National Roadster is never called "she".

The National Roadster is unusually capacious, both for passengers and for luggage. There is a world of room in the front compartment and a large carrying space in the rear. The gasoline tank is enclosed in the body in the rear deck, and gasoline is put in by means of a convenient filler.

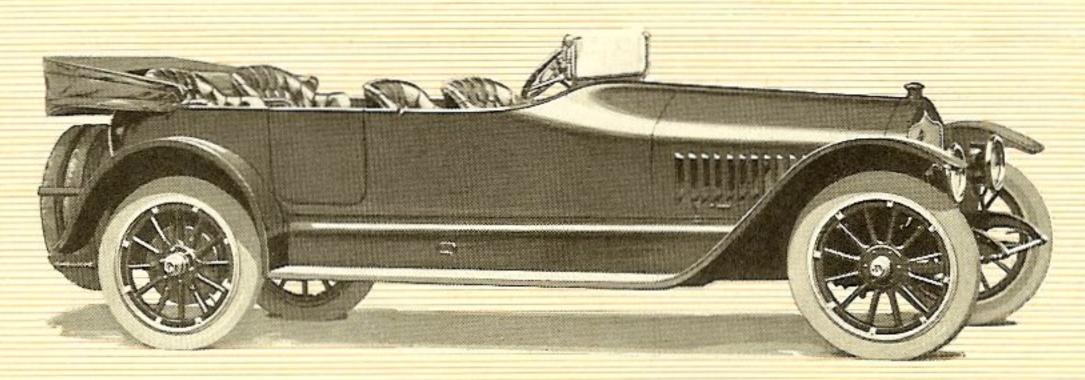
To give the roadster a lower center of gravity, the wheels are smaller (tires $34 \times 4\frac{1}{2}$) than those of the touring car. The wheelbase, shortened to 124 inches, permits the roadster to turn easily in narrow streets.

Toy Tonneau. The National four-passenger Toy Tonneau is long, low and racy, and will cling to the road in such a way as to permit good speed with absolute safety. There is perfect streamline from front to rear, there being no projecting objects to break the flow of the design.

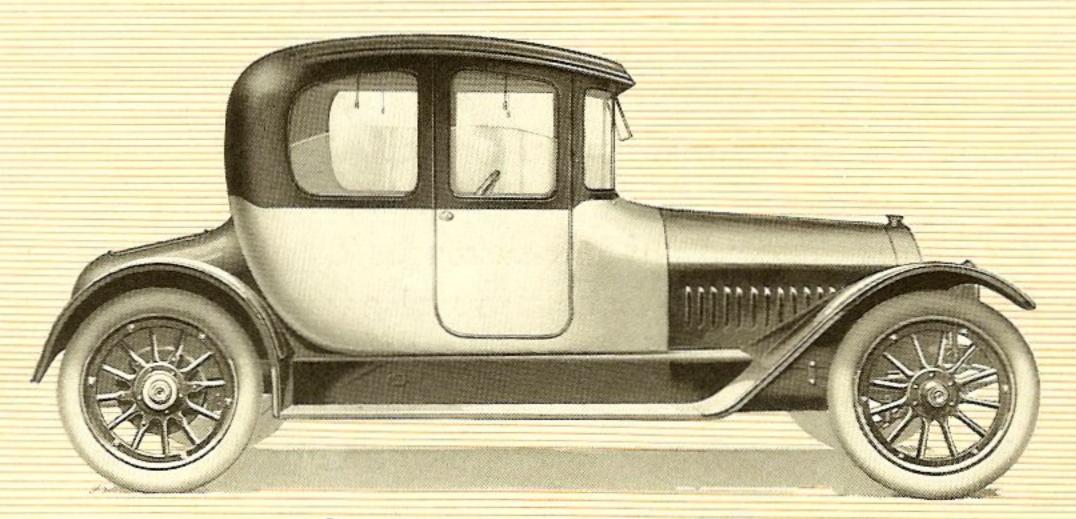
That the lines may be absolutely straight, and in order to preserve



Cabriolet, Convertible Roadster-\$2,700



Adjustable Armchair Parlor Car-\$2,700



Coupe Coach, Four-Passenger-\$2.850

the projectile-like appearance of the car, the front seat is built in one piece, instead of divided as in the National Standard Touring Car. To keep the running board clear, the batteries are concealed under the splasher, accessible through a neatly hinged door. The tools are handily available in pockets inside the left front door; there being a special holder for each tool.

Standard Touring Car. The Standard Touring Car, with its aisle-way seats, is the all-around family car of the National line, seating five passengers comfortably. It may be obtained also with two emergency seats for two extra passengers, in which case the price of the car becomes \$2,400.

An aisleway between the front seats of the Salon Touring Car proved so popular that it was adopted for this new series Standard Touring Car. The advantages of the aisleway are many: It provides a separate seat for the driver; it throws the entire car into one room so that passengers may readily change seats; it permits perfect ventilation from front to rear; and it makes the "one-man top" true to its name.

There is a slightly greater degree of conservatism in the Standard Touring Car than in the Toy Tonneau, this car being not quite so low and rakish. The seats are higher and the rear seat is broader. The passageway between the front seats makes individual chairs for the forward passengers. No more comfortable car exists in the world.

Salon Touring Car. The Salon Touring Car, with divided front seats, is a full six-passenger car, and is the largest of the three types of National touring cars. It may, however, be converted instantly into a four-passenger car, with the two extra armchairs folded snugly into the back of the front seats.

Entrance can be made at any one of the four doors. For winter months a closed car effect may be obtained by making permanent the Jiffy curtains in the rear, the rear-seat passengers using the front door and the aisleway.

Coupe. The National Coupe is an excellent drive-your-own-car

type of closed car. With its carrying capacity of four passengers (the average carried by the limousine) it offers all the advantages of any closed car, without involving the expense of chauffeur hire.

Each of the four passengers has plenty of room; there is a special seat for the driver, located slightly forward of the main seat; the main broad seat provides ample room for two; and another seat in front, which may be folded out of the way when not in use, is large and comfortable for a fourth passenger.

The windows are of heavy, beveled plate glass, sashless, and so perfectly fitted in specially designed grooves that rattling is impossible. On both front corners, rounding glass is provided. The glass in the doors may be lowered to the sash, as may the rear window, while the glass in the large side windows may be dropped half way.

The finest grade of soft leather is used for upholstering, and for lining both the sides and roof.

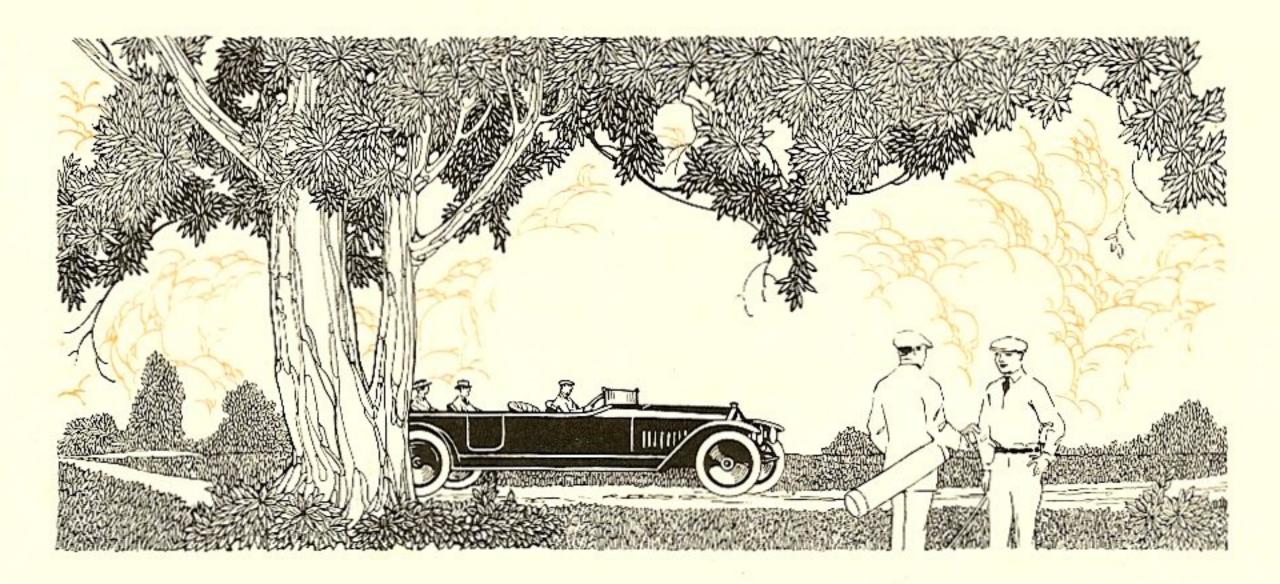
Cabriolet. The Cabriolet is the ideal year-around car. It offers all the advantages of the closed car, and makes a stylish roadster in warmer weather, with the top folded.

The seat of the National Cabriolet is broad, deep and comfortable. The upholstering is of the best grade of genuine leather. The upper part of the body is of genuine leather, specially finished to withstand weather. It is absolutely waterproof and does not crack.

The upper part of the door is heavy plate glass encased in a strong sash, which drops into the lower part of the door—entirely out of the way and protected, when the top is down.

In the rear part of the body is located a large luggage space, which is so often missing in cars of this type. The equipment and specifications of the Cabriolet are the same as for the Roadster.

National cars are complete. Nothing is left undone that will add to comfort, convenience and the safety of motoring.



National Parlor Car

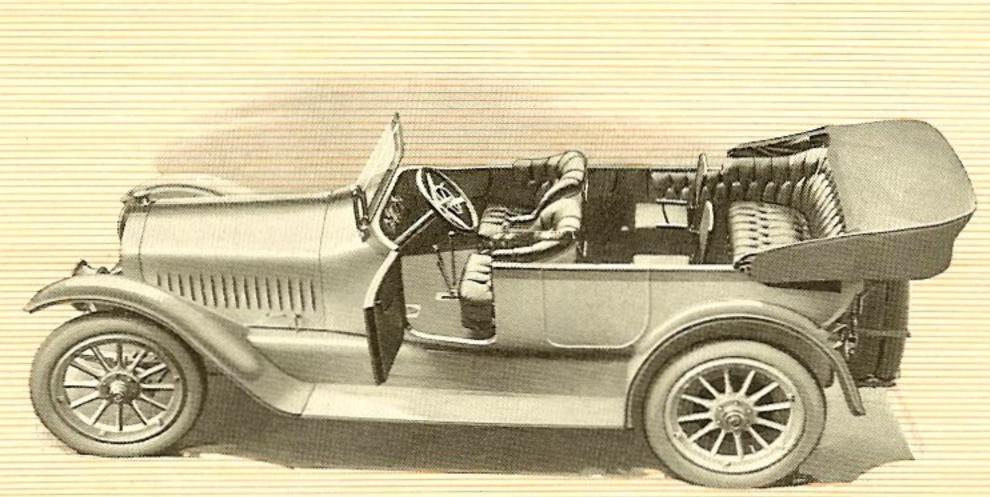
The National Parlor Car is appropriately named. In luxury, comfort and refinement, this new National excels the conventional touring car to the same extent that a Pullman excels a day coach.

This National Parlor Car has four individual seats, veritable armchairs, deep and massive, which turn around or move forward and back at will, or, if it is so desired, may be held firmly in place.

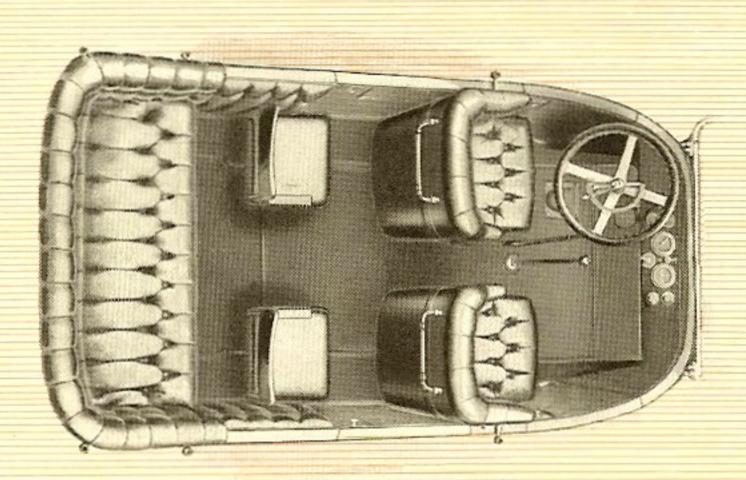
A seating arrangement of this sort permits the passengers to face one another and enjoy the same sociability while motoring that is obtainable in the home. The driver can remove his seat as near to the steering wheel and pedals, or as far away, as he wishes.

The aisleway extends between all four seats. The car is one room, entirely lined with leather upholstering. In the rear of the body is a folding extra seat, concealed, but easily drawn out for an additional passenger. Any one of the Parlor Car chairs may be altogether removed from the car. Entrance and exit are through a single broad door on either side. On the driver's side the door is located forward.

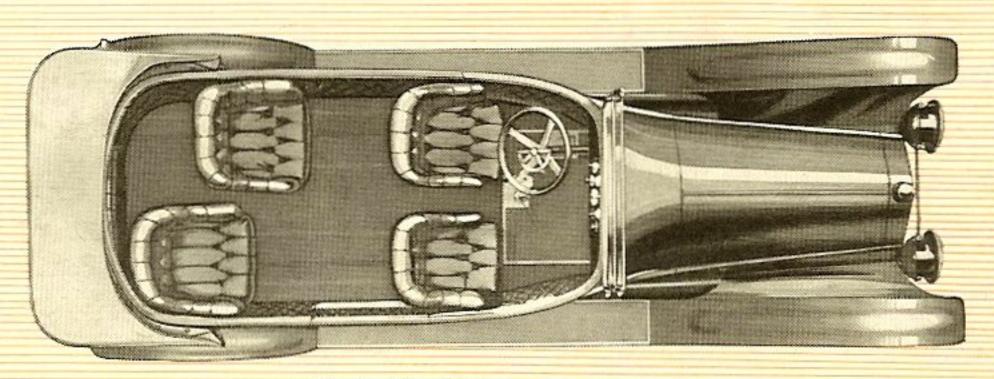
At the race course or polo grounds, when the passengers wish to remain in the car, this parlor car arrangement will be found especially ideal, for the party may move and turn their chairs at will.



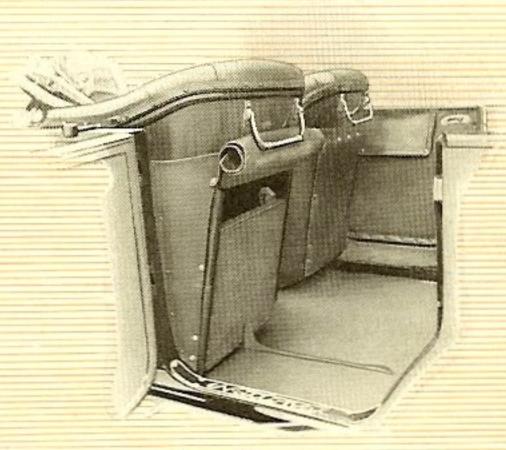
Salon Touring—Interior Arrangement



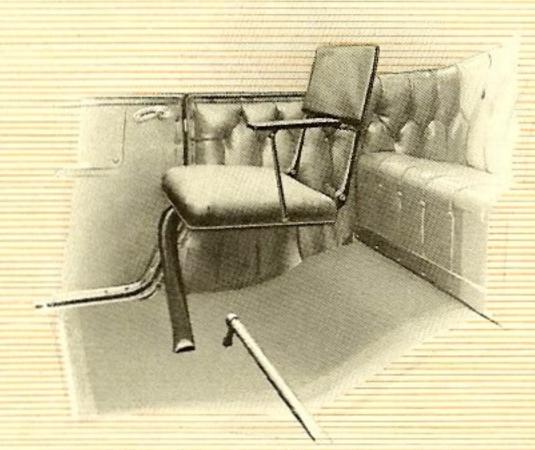
Salon Touring Seating Arrangement



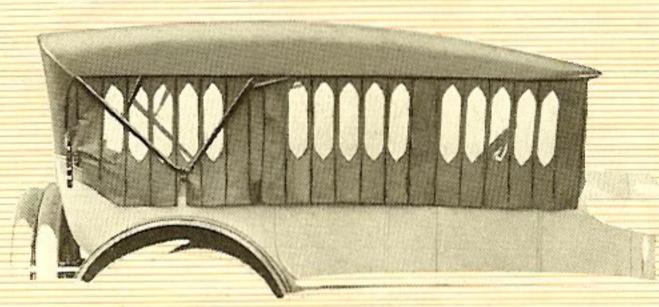
Parlor Car Seating Arrangement



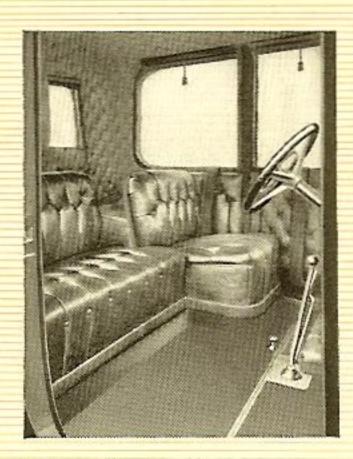
Salon Touring
Extra Chairs Are Covered When Not in Use



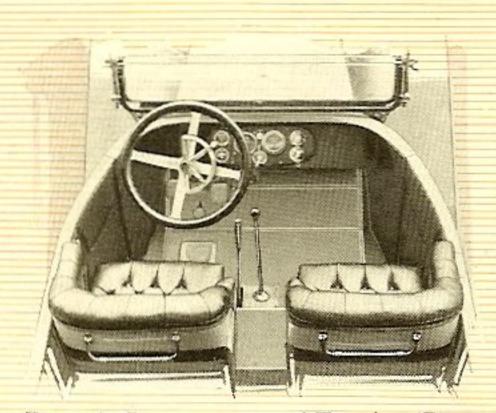
Salon Touring, Extra Armchair



One-man Top and Jiffy Curtains

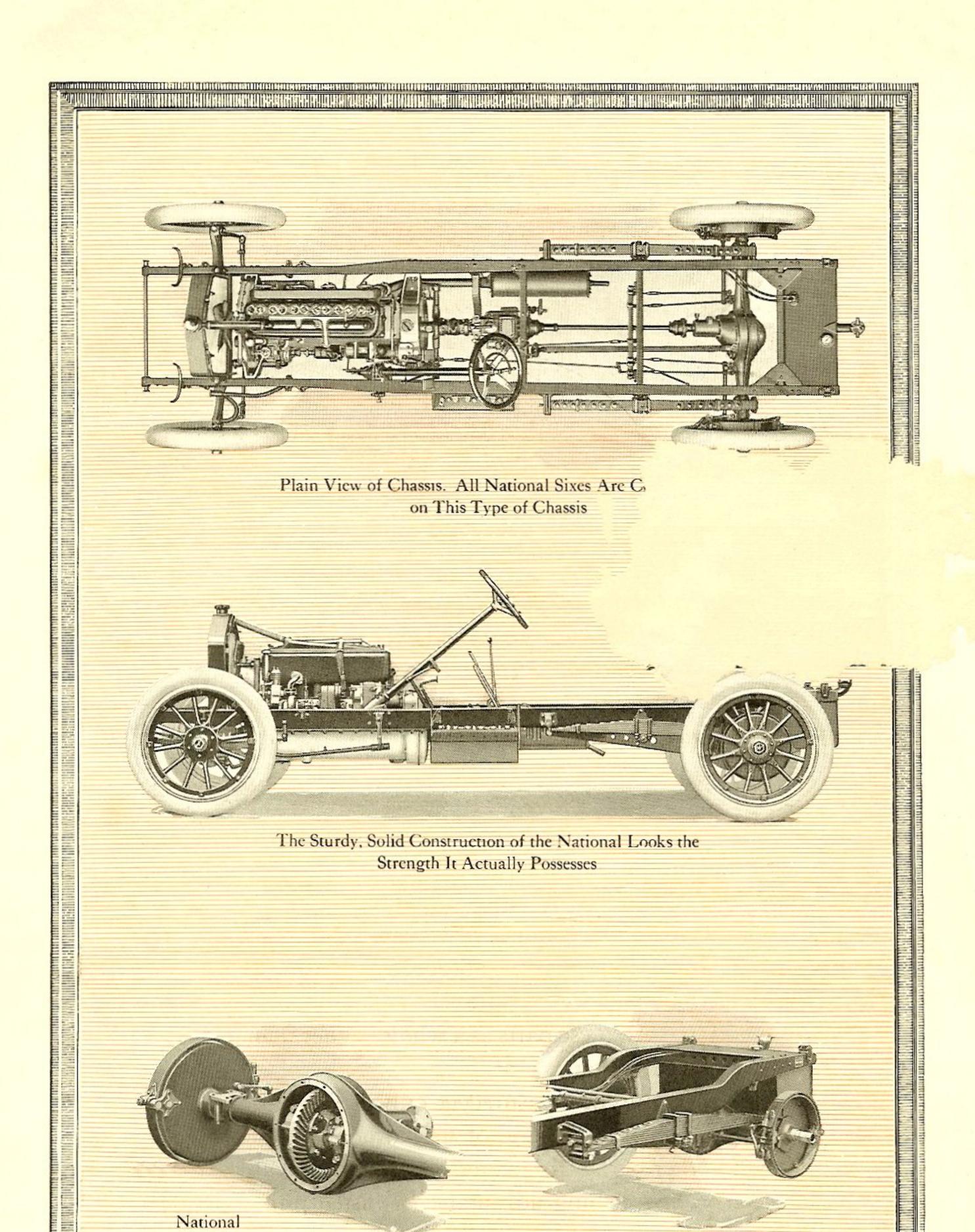


Coupe Seating Arrangement



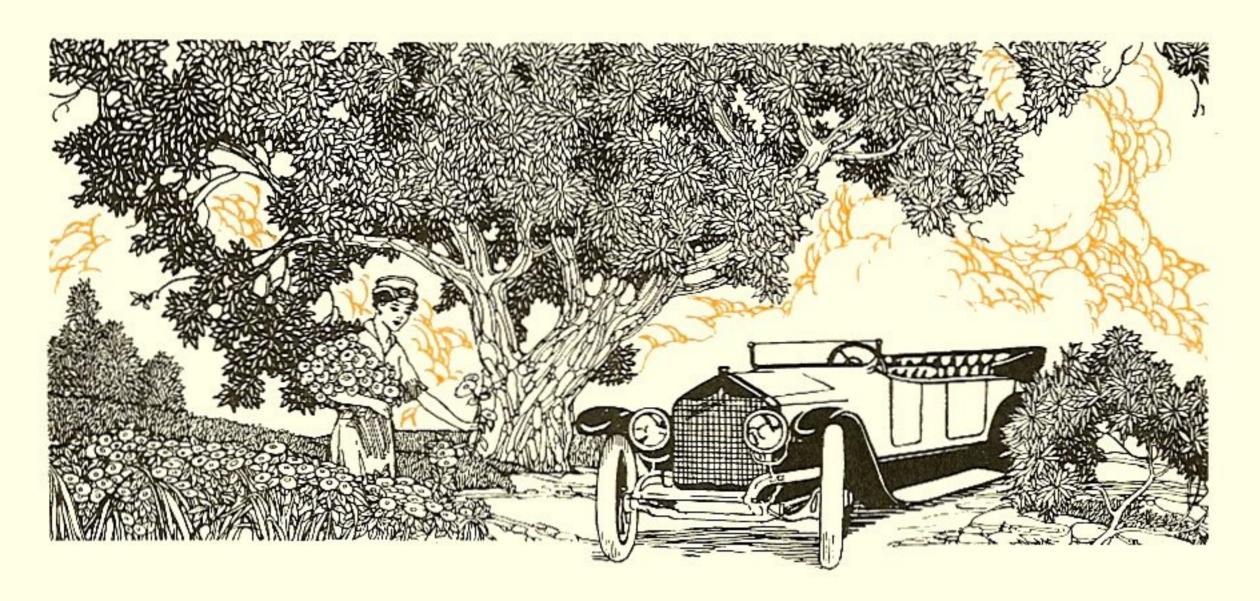
Driver's Compartment of Touring Cars

19



Spiral Gears

National Cantilever Springs



A Perfect Mechanical Unit

In twenty-seven different places on the National Six there are mechanical arrangements that are considerably better than found on the average car. These mechanical perfections are the result of intensive study and research covering a period of fifteen years. They are the concrete reasons why the National commands universal respect in engineering circles.

Even the layman knows of National mechanical reputation. The sale of National cars is on a constant increase; this is evidence of a popular understanding of the remarkable mechanical construction of National cars.

And yet, with its many mechanical advantages, the National never elaborates on its "features". It has long been the policy of the National company to make its claim for reliable mechanical operation on the satisfactory working of all these parts as a whole, rather than to exploit the perfection of any one detail.

Mechanical ability is to be measured in only one way—by results. Each part is of value, only because of its harmonious operation in conjunction with other parts. No matter how wonderful any particular feature may be, its seeming advantage is wasted unless the part

which works *next* to the particularly featured part is equally efficient. So throughout the National you will find no one feature standing out more prominently than another. All of the twenty-seven National superiorities are closely blended, one into another. Often extra material, however expensive, is added to one part, not because it will make that particular part more efficient, but because the extra material and expense will greatly increase the working arrangement and efficiency of some other part.

Operation of the National may be compared to the playing of a well-trained orchestra, wherein a group of artists renders a perfect symphony. No one particular instrument deserves special credit. So it is, that you will not find the answer to the known excellence of the National car at any one point—but a careful review will reveal many places in which just a little better material, just a little more time, and care, have been applied than conventional construction would ordinarily necessitate.

The National Six is long enough to be comfortable. A short car would transmit all the road bumps to the seat, but the long wheelbase (134 inches) of the National smooths out the road. Yet it is not overlong, as is the case with some cars, for too much length tends to weaken a car by the weaving of the frame. And the fact that the National touring car may be turned in very narrow space is of a decided advantage when driving in the city traffic districts.

Many automobile owners would not recognize transmission bearings if they saw them, yet some of these same owners have had to replace transmission bearings in their cars. The large imported annular bearings in the National transmission are over-sized, and are so strong they will last the entire lifetime of the car.

Cheap automobiles can not be comfortable. Steel is sold at practically a standard price, and no one builder can buy high-grade spring steel for much less than another. Therefore, to make an easy-riding car, actual value must be included.

National engineers were pioneers in cantilever spring construction for American-made cars. The cost and the difficulties experienced in applying them to low-priced cars are the main reason why *all* manufacturers do not now use cantilevers. To render the maximum comfort cantilever springs must be big enough to permit applying them in a "flat" or horizontal position.

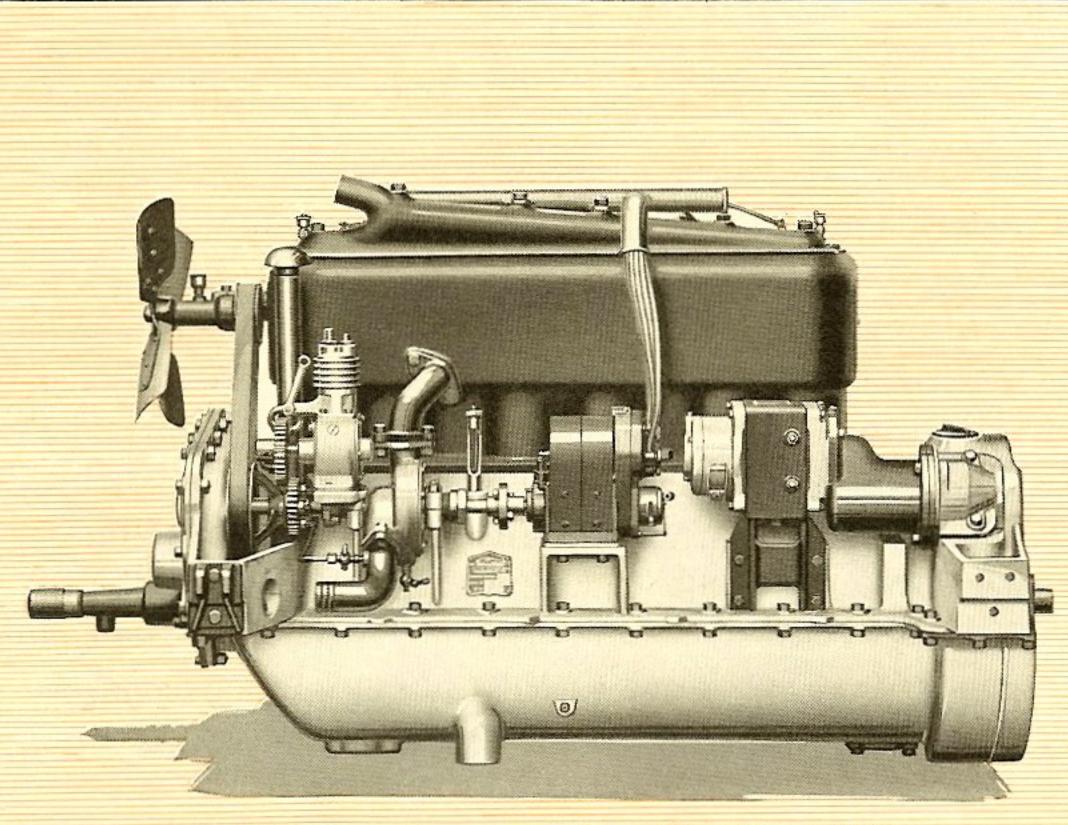
National Sixes are equipped with Truffault-Hartford shock absorbers in front, but are without shock absorbers in the rear, since National cantilevers consume all jolts. Small lubricant pockets on each spring leaf make National springs absolutely free from annoying squeaks.

Another explanation of the smooth riding of National cars lies in the suspension of the body—which is worked out with utmost care and science. The location of each seat is such as to give maximum comfort, with regard to balance. This is also the reason why one set of tires often lasts eight to ten thousand miles on National cars.

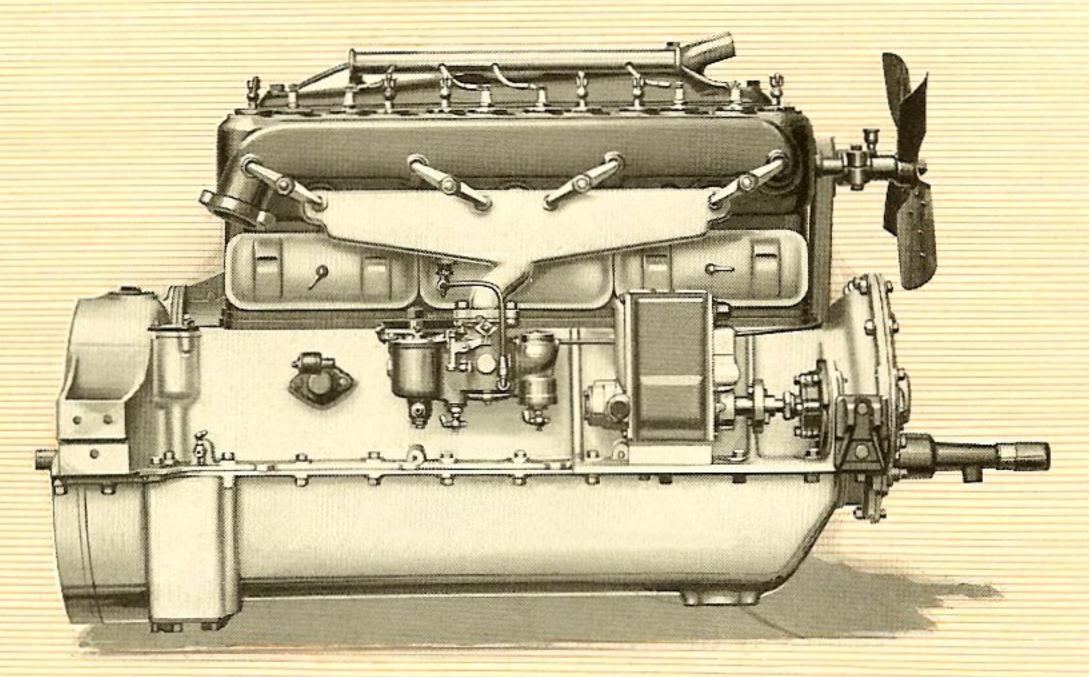
Until recently it has been impossible to cut a spiral-shaped gear for the driving pinion and ring gear. Spiral gears are quiet and strong because so much greater tooth surface can be in mesh. New machines recently perfected have enabled National engineers to cut the driving gears of the National with spiral teeth. This positively eliminates all "sing" from the rear axle.

The electric system of the National was planned and built into the car, and therefore performs in harmony with other parts. Separate units are used: first, a powerful dynamo for generating the current; second, a separate silent motor used for starting. The starter motor is "hooked up" to the engine through an automatic mechanical engagement. This method is ideal for women drivers, since it requires only the same amount of pressure against the starter button as is necessary in ringing a common door-bell.

This electric motor *spins* the engine at such a high rate of speed, and is so reliable, that only the high-tension magneto is used for ignition. This magneto is entirely separate from the other electric units.



National Motor, Showing Tire Pump, Water Pump, Oil Gauge, Magneto and Starting Motor



National Motor, Showing Dynamo and Special Design Intake Manifold

The National Six Motor

The National type of six-cylinder motor is by far the best developed motor of to-day. There is not the least bit of experiment about it. More engineers have concentrated their efforts upon making the six-cylinder motor perfect in operation than have lent their efforts to develop any other type of automobile motor. As a result the National six-cylinder motor is absolutely above any criticism, and six-cylinder motors are the acknowledged standard of the automobile industry.

In reviewing the upkeep cost of motor cars one generally thinks first of gasoline and oil expense, together with tire cost. These things are in reality second to the item of accessibility. In these days when so many motor parts are produced by automatic machinery, particularly on the lighter motors of low-priced cars, the feature of accessibility is often sacrificed in order that parts may be stamped out rapidly. Many of these motors are assembled with only one idea—quick manufacturing. As a result, when some bolt or part works loose, from vibration, it is often necessary to remove several parts in order to adjust or replace the bolt. This requires time, and not only is there the expense of extra labor to be paid, but the car owner is deprived of the use of his car for a long period, while the minor adjustment or replacement is being made.

In building the National motor, the matter of accessibility was very carefully considered. If it is necessary to adjust any one part, this can be done readily without delay or unreasonable expense. This means, also, that minor adjustments will be made before they lead to real trouble. This is why the National company considers the matter of accessibility a factor in upkeep expense.

The National Six is economical. The perfect balance of the car as a whole results in every part doing its full work without any unnatural resistance. This is why the National motor develops any part of fifty-five horsepower at a fuel efficiency up to seventeen miles per gallon.

Detail Specifications

MOTOR

- Cylinders—Six, size 3¾ x 5½, L-head, cast en bloc. Large water jackets. Removable top cover to allow free access to water jacket space. By a special process the National cylinders are annealed—a process which removes all the strains from the iron so that no unusual pressure or strains can result.
- Horsepower—By S.A.E. formula the National Six motor is conservatively rated at 33.75 H. P. In brake test 58 H. P. is developed without fuss or vibration. Piston displacement is 364 cubic inches.
- Pistons—Each piston is fitted with three rings. They are provided with special oil recesses and drilled with relief holes to prevent motor smoking in the event too much oil is used. The pistons and all reciprocation parts are of highest quality material. They are unusually light in weight. Corresponding weight has been added to the crank case and crank shaft, which makes the National motor light and economical but solid and sturdy in operation. High speed is possible without vibration.
- Crank Case is of special aluminum alloy. It is strong and rigid. It holds the moving parts in perfect alignment at all speeds. Crank case is divided horizontally, the upper half contains shaft and bearings, while the lower half serves as oil basin. This oil basin can be quickly removed. The pistons and connecting rods can be readily removed from below without disturbing the main bearings.
- CRANK SHAFT is heavy and firm. It is drop forged from open-hearth steel, heat-treated. The solid crank shaft and rigid crank case are greatly responsible for the long life of the National motor. They compel all other parts to perform without strain or vibration. There are four extra large main crank shaft bearings. They are nickel babbit, bronze backed. Size of bearings, front 2 x 31/8, two center bearings 2 x 21/2, rear 21/8 x 4.
- Valves—Valve mechanism is entirely enclosed and operated by one-piece cam shaft. Valves are all located in right side. They are of liberal size, having an effective working diameter of 111/16 inches. Valve stems and push rods work in separate removable bushings and are protected by removable side plates.
- INTAKE MANIFOLD is a separate aluminum casting of unique design. It is placed close to the cylinders and is hot-water jacketed. This arrangement insures a uniform mixture for all cylinders.
- CARBURETION—National-Rayfield design of carburetor. Size 1¼ inches. Carburetor is hot-water jacketed, also warmed by hot air from the exhaust. It gives a positive mixture and a wonderful flexibility to the motor. "Choking" is practically impossible. Dash adjustment and primer for cold weather use are conveniently located.
- IGNITION is supplied by a reliable high-tension magneto (Eisemann), the most positive ignition to be

- had. Entirely separate and independent of electrical equipment. Ignition wires neatly held in non-conductive tube.
- Timing Gears are cut helical. The idler gear is adjustable, insuring noiseless gears at all times.
- Cooling—Special radiator of improved National design. (National "Shield" radiator first used in 1907.) Radiator mounted on trunnions. Adjustable ball-bearing fan. Water circulated by centrifugal pump. Capacity of water system, six gallons.
- Lubrication is of the self-contained, positive feed type, the oil being pumped from the oil reservoir, beneath the crank case, and forced to top of main bearings. From there the oil overflows into pockets in bottom of crank case into which the connecting rods dip. Pockets have overflow holes which allow the oil to drain back into reservoir beneath so that a constant level of oil is maintained. An indicator, which shows at all times the amount of the oil, is placed adjoining the filling tube. Oil pump and strainer are removable from the outside of crank case without disturbing any other parts. Capacity of oil reservoir, three gallons.

CLUTCH AND TRANSMISSION

- Clutch—Leather-faced aluminum cone, operating in fly-wheel of motor. National design, and successfully used for years in National cars. Proven efficient by many gruelling races. Clutch is removable without disturbing transmission.
- Transmission—Selective type. Three forward and one reverse speed. Large, broad-face gears. Annular ball-bearings throughout.

GASOLINE SUPPLY

- TANK carried in rear, securely fastened to main frame and easily filled without disturbing passengers. Capacity twenty-one gallons.
- MILEAGE—National Six owners throughout the country testify, unsolicited, to the remarkable records made. Fuel efficiency of fifteen miles per gallon is a fair average. Many owners claim more.

ELECTRICAL SYSTEM

- Lights—Conveniently controlled by one button on the dash. The two powerful headlights are also fitted with small bulbs, thus giving two sets of lights in front. Small, enclosed lamp illuminates the dash. Tail lamp is combined with the license holder. Lighting system is entirely automatic. Current generated by small dynamo and stored in storage battery for use when car is standing. Dynamo is separate from starter motor, eliminating possibilities for troublesome "shorts". Battery is concealed behind running board splasher and accessible by means of easily removed cover.
- Starter—The electrical system is the National-Westinghouse design of separate units. Built and guaranteed by the well-known Westinghouse Company. Starting is effected by a small but

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- had. Entirely separate and independent of electrical equipment. Ignition wires neatly held in non-conductive tube.
- Timing Gears are cut helical. The idler gear is adjustable, insuring noiseless gears at all times.
- Cooling—Special radiator of improved National design. (National "Shield" radiator first used in 1907.) Radiator mounted on trunnions. Adjustable ball-bearing fan. Water circulated by centrifugal pump. Capacity of water system, six gallons.
- Lubrication is of the self-contained, positive feed type, the oil being pumped from the oil reservoir, beneath the crank case, and forced to top of main bearings. From there the oil overflows into pockets in bottom of crank case into which the connecting rods dip. Pockets have overflow holes which allow the oil to drain back into reservoir beneath so that a constant level of oil is maintained. An indicator, which shows at all times the amount of the oil, is placed adjoining the filling tube. Oil pump and strainer are removable from the outside of crank case without disturbing any other parts. Capacity of oil reservoir, three gallons.

CLUTCH AND TRANSMISSION

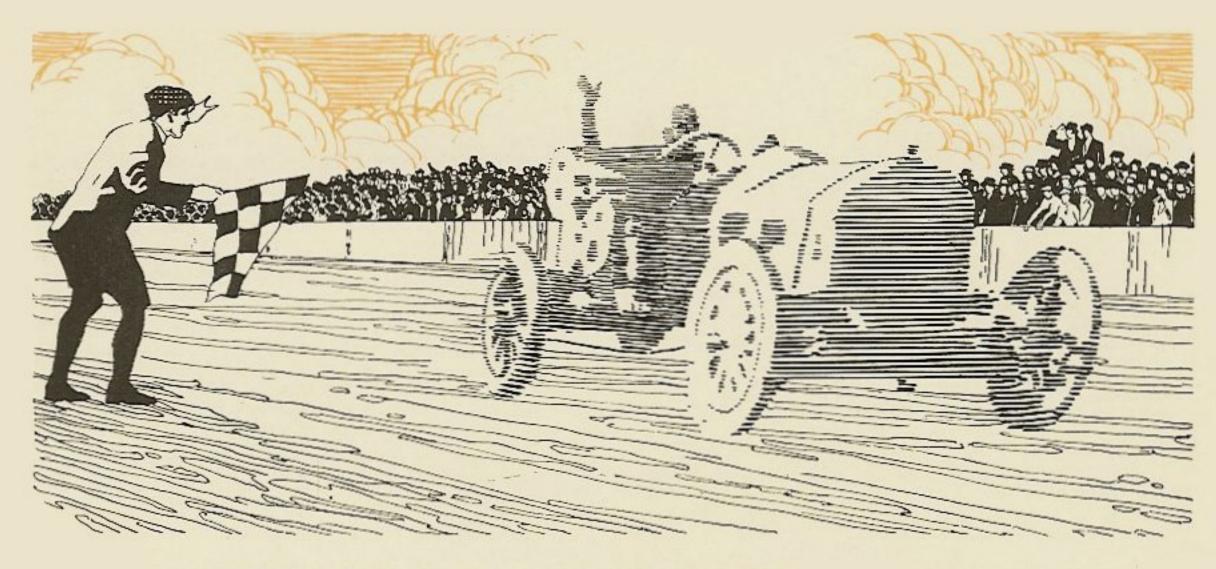
- Clutch—Leather-faced aluminum cone, operating in fly-wheel of motor. National design, and successfully used for years in National cars. Proven efficient by many gruelling races. Clutch is removable without disturbing transmission.
- Transmission—Selective type. Three forward and one reverse speed. Large, broad-face gears. Annular ball-bearings throughout.

GASOLINE SUPPLY

- TANK carried in rear, securely fastened to main frame and easily filled without disturbing passengers. Capacity twenty-one gallons.
- Mileage—National Six owners throughout the country testify, unsolicited, to the remarkable records made. Fuel efficiency of fifteen miles per gallon is a fair average. Many owners claim more.

ELECTRICAL SYSTEM

- Lights—Conveniently controlled by one button on the dash. The two powerful headlights are also fitted with small bulbs, thus giving two sets of lights in front. Small, enclosed lamp illuminates the dash. Tail lamp is combined with the license holder. Lighting system is entirely automatic. Current generated by small dynamo and stored in storage battery for use when car is standing. Dynamo is separate from starter motor, eliminating possibilities for troublesome "shorts". Battery is concealed behind running board splasher and accessible by means of easily removed cover.
- Starter—The electrical system is the National-Westinghouse design of separate units. Built and guaranteed by the well-known Westinghouse Company. Starting is effected by a small but



World's Stock Car Champion

The American-made automobile that you think of when you think of a tough, unbeatable, impregnable piece of machinery under the hood, is the National. The kind of automobile that people want nowadays is one that will stand sledgehammer blows and still run regularly.

The best-kept automobile has many days of rough weather.

A stiff race—a 500-mile race, for instance—is a quick way to find out how an automobile will stand rough weather.

The National earned and still retains the title of the "World's Stock Champion". The National cars have made world's records and the National cars that you see on the street every day *show* that they are from a line of record makers—as plainly as a race-horse shows pedigree.

In addition to this title of "World's Stock Car Champion", the National won the famous 500-mile race on the Indianapolis Speedway three years ago, and established a record for that classic. And to-day National's time still stands as the record for American cars in 500-mile races. With this record yet unequaled, the National, for obvious reasons, has not entered any subsequent races.

The National's racing records prove reserve force—without which a man or motor is worthless.

