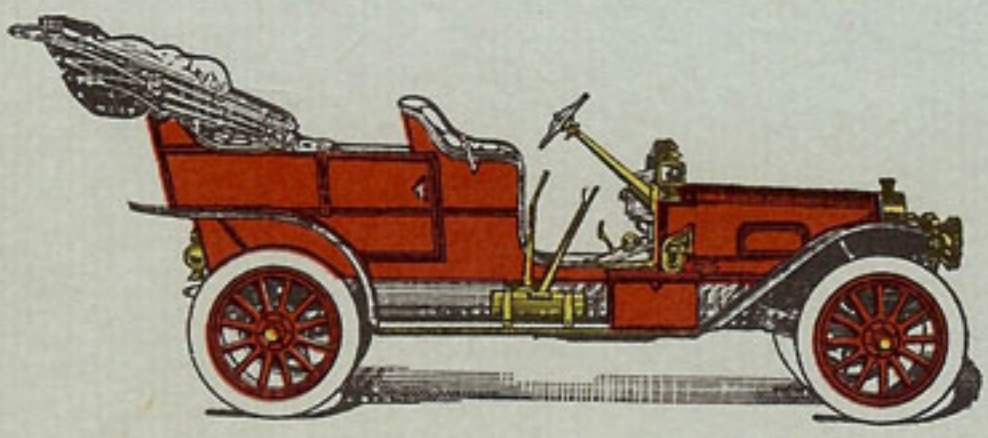
Ford
Motor Cars
1907

Model "K"

Ford Motor Co.
Detroit, Michigan, U.S.A.



FORD
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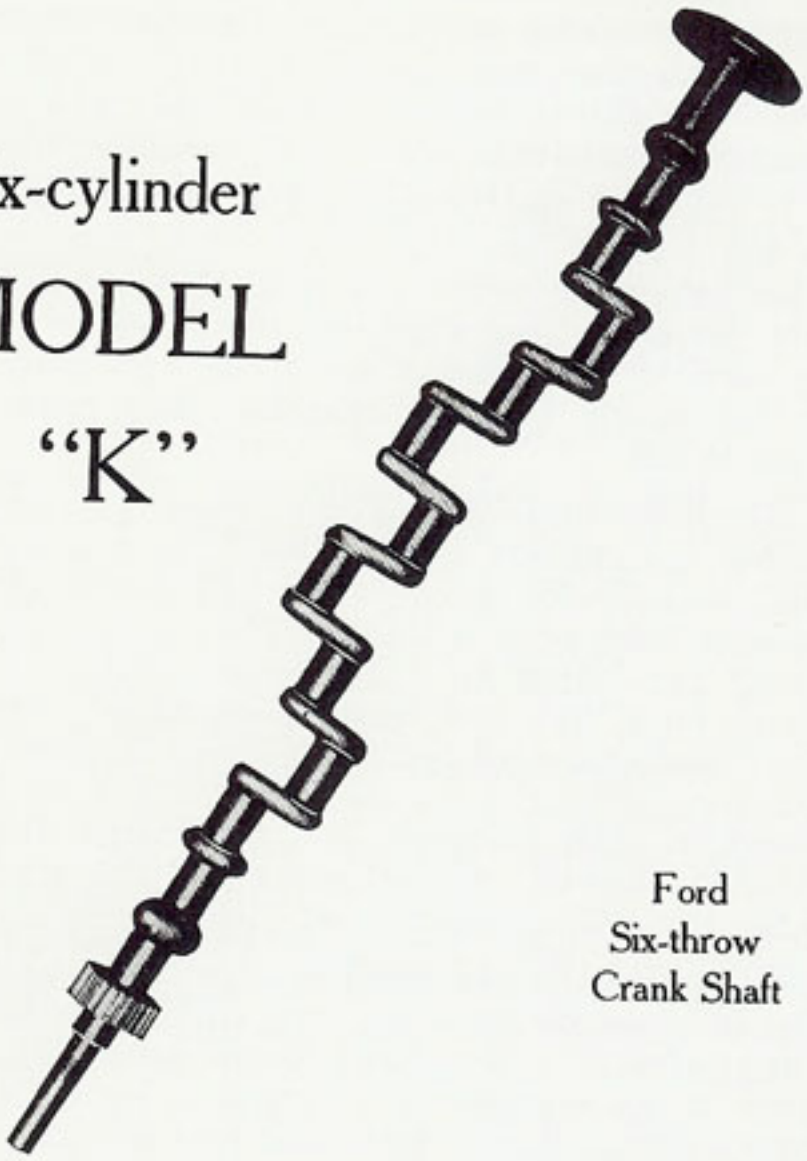
Six-cylinder

MODEL

"K"



Ford
Six-throw
Crank Shaft

FORD MOTOR CO.

Member American Motor Car Mfrs. Assn., New York

FACTORY, DETROIT, MICH.

RETAIL BRANCH STORES

147-149-153-163 Columbus Ave., Boston; **1721-23** Broadway, New York; **727** Main Street, Buffalo; Broad and Buttonwood Sts., Philadelphia; **1444** Michigan Avenue, Chicago; **1913** S. E. Euclid Ave., Cleveland; **268-270** Jefferson Ave., Detroit; and **318-320** E. 11th St., Kansas City. **CANADIAN TRADE** supplied by Ford Motor Company of Canada, Limited, Walkerville, Ontario.

Supremacy of "Sixes"

IT is no longer necessary to defend the six-cylinder idea nor to expound the superiorities of the six-cylinder engine as applied to motor cars. The "Six" has won its own way in actual usage and has made for itself a foundation stronger than any theoretical analysis or scientific deductions could lay for it. That Ford was a year ahead of all other American makers in putting the six-cylinder type of touring car on the market in quantities, was the reason we had to take a prominent position in all controversies between the advocates of "sixes" and "fours." The time for argument is now happily past. Truth will out and thinking persons have a way of deciding—with the majority on the right side despite the efforts of the "anti's" to befog the issue or to mislead.

It may be laid down as the rule, to which perhaps there are exceptions but not more than enough to prove the rule, that those who now advocate less than six cylinders in cars of over 30 horse power are those who **must do so for purely business reasons—they have no sixes to sell.**

No less than 103 of the most prominent motor car makers in the world have adopted the six-cylinder idea—many of them much against their own wishes, for, to discard everything pertaining to their former models and begin on a new one just when they thought they had standardized their product, was expensive. But the buyer is the court of last resort in such matters—and the buyer unmistakably showed his preference for the six-cylinder car. The maker must yield.

Of course the old familiar arguments against the increase of cylinders are still made to do duty—though they have been worn threadbare in the successive attempts to retard progress, first, from the "one-lunger" to the double, then to four and finally to six-cylindered motors. None of the arguments used against sixes today but were used against the four and in favor of the single, **by the very same makers who now advocate fours as against sixes.**

"More cylinders the more troubles" is the simplest and the least impressive of all revamped arguments. What cylinder troubles does one have nowadays—or ever, for that matter? And what valve or carburetion or ignition troubles in a well designed and well made motor?

It won't do. **Every motorist now knows that all the troubles he ever experienced were traceable directly or indirectly to vibration which,**

in motors of less than six cylinders, it is impossible to entirely eliminate.

No theory, no argument, no faddish consideration could have forced the six-cylinder car to the front if there was not more back of its claims to superiority than that. That it is the only form in which perfect torque and mechanical balance can be obtained in a reciprocating gas engine; that the overlapping impulses which are obtained with six pistons working on cranks set at thirds of a circle (120 degrees) gives to this type of motor a flexibility and a **constant pulling quality** unobtainable in any other form; that it is as silent as it is smooth in running; that the six cylinders draw constantly and evenly on the carbureter, thereby eliminating many of the difficulties which vex and confound the designers of motors having less cylinders; that the even running—no moment of inertia between impulses—also simplifies the magneto problem and makes **ignition of six cylinders less troublesome than four;** these and many others are the real reasons for the present popularity and the future supremacy of the six-cylinder car, not only in higher powered machines, but—we venture the assertion—in all cars of a high class regardless of power.

The maker who would admit he had made no progress in a year would soon be deserted by his following. To admit a weakness in last season's model would, in a short-sighted sense, be a confession of a grievous mistake. Not to do so would be dishonest and cowardly. Every maker would like to put in the cars he built five years ago all the knowledge he has gained since then. That is impossible—and beside, the buyer got his money's worth, everything considered.

The 1906 Ford Model "K" was a great car. The greatest car for the money that was to be had. Hundreds of owners still protest it has no equal. At the same time we know that the 1907 model is superior in many points. The 1906 model had to stand the brunt of much argument against sixes in general and it had to undergo many severe tests to uphold its end. This was hard on individual cars but it resulted in much valuable information to us. Every weakness that was developed, no matter in what manner, we have strengthened. Details have been refined until now we obtain every ounce of power to which the dimensions of the cylinders entitle us and the car throughout has strength to withstand any usuage over any kind of roads.

In short we have no hesitancy in stating that the 1907 Ford six-cylinder model is the best piece of work the Ford Motor Company has ever turned out in the form of a touring car.

FORD

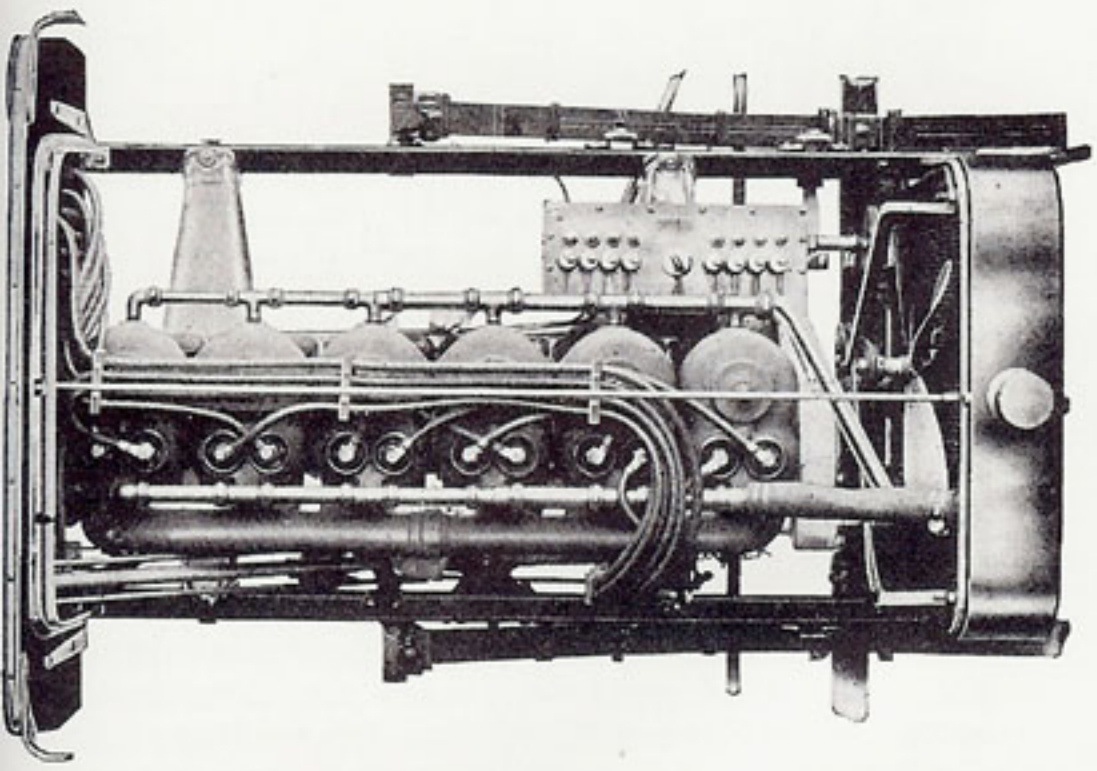
Motor

Model "K";—Six-cylinder vertical; conservatively rated at forty horse power. Cylinders, individual, with water jackets, valve chambers and heads cast integral. Inlet and exhaust valves are located on the driver's side and a single cam-shaft serves to operate the twelve valves. While foreign practice has, until recently, favored the system of placing the exhaust valves on one side and inlet on the opposite side, there is a noticeable deflection from this practice to the more simple and equally efficient "valves all on one side plan."

VALVES in this Ford motor are large. The cam design affords the most efficient opening and closing effects, exhaust ports and pipes are liberal in dimensions, so that the full amount of power justified by the cylinder dimensions is obtained. In the 1907 model the compression is greater than in the 1906 model. This is not to be understood as saying the compression is extremely high, but we obtain greater results now than formerly.

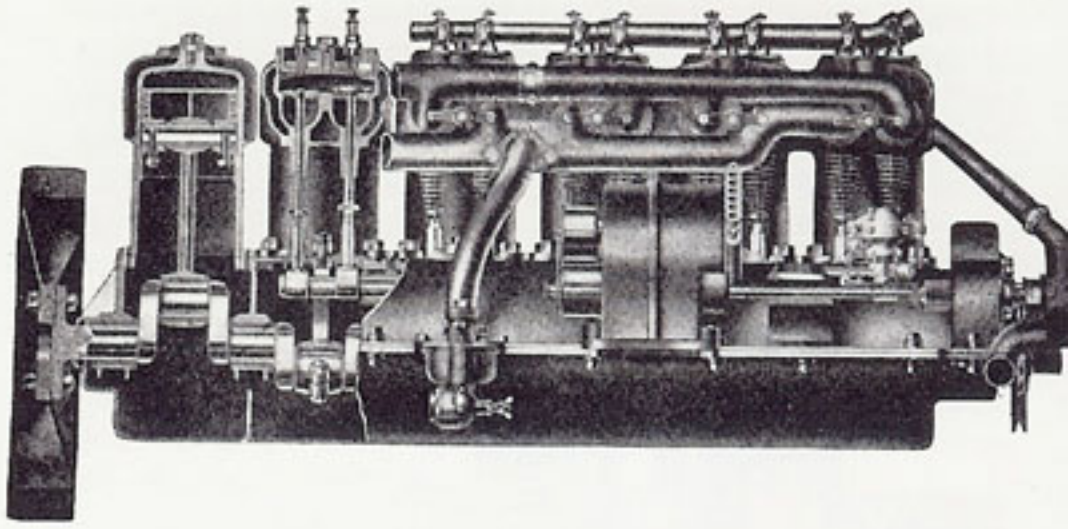
CYLINDERS are rough bored, then annealed to relieve the metal of all strains, after which they are rebored, reamed and finally ground to micrometrical accuracy. This gives an absolutely round and straight cylinder and, owing to the annealing process above described, no distortion will result from overheating in use.

CRANK - SHAFT is drop forged from chrome steel and heat-treated after forging. Crank pins are set at 120 degrees—one-third of



Top view "K" Motor, showing valve arrangement, magneto and double ignition system of plugs and wiring.

a circle—so that in this six-cylinder motor there are three impulses in each revolution. Cylinders fire in the order of 1, 2, 3, 6, 5, 4,—the order which, adopted in the first Ford six, has



proven in the most exhaustive experiments to give the best results. The shaft is forged in one piece—not welded—and is ground to one-thousandth of an inch of true. Bearings are exceptionally long and the diameter is 1⅝ inches.

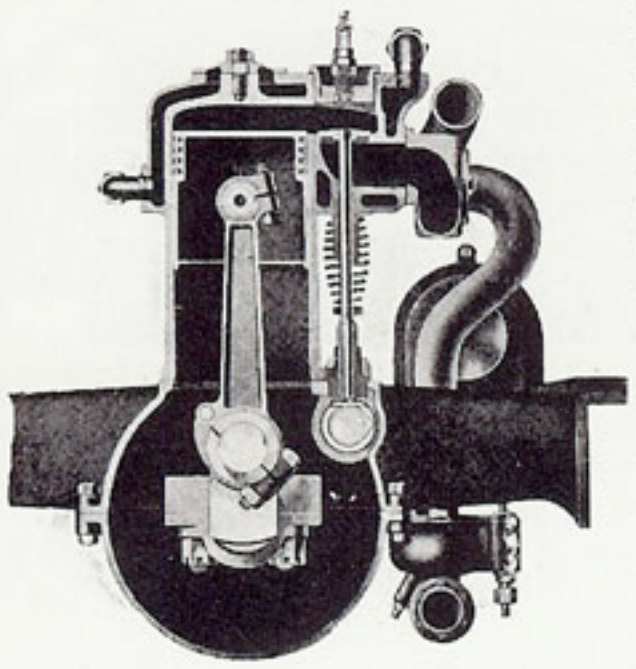
FLY-WHEEL—Thanks to the even torque and overlapping impulses of the six-cylinder motor, a heavy fly-wheel is not necessary to store the power between impulses or to absorb vibration, as in motors of less than six-cylinders. The Ford fly-wheel weighs but sixty-five pounds and its diameter is fourteen inches so that there is a greater road clearance in this car than in any other. Fly-wheel is bolted to a flange forged integral with the crank-shaft, is accurately centered and balanced.

PISTONS are cast from a special fine-grain gray iron. After being rough and smooth turned in lathe, are annealed, then re-turned and finally, ground. Four rings of the eccentric type, split diagonally and ground on three sides, are fitted to each piston. Piston pins are of liberal size, made from high-grade steel, hardened and ground. Two set screws, themselves locked by spring-cotters, secure the pins in pistons.

CONNECTING RODS drop-forged in "H" section from steel specially suited to this service. Lower bearing caps hinged; upper bearing retainer split to allow for adjustment by means of set screws and split bronze bushing. Crank-pin bearings are adjustable by removing shims provided for that purpose.

BORE AND STROKE—Cylinder bore is 4½ inches, stroke 4¼. These proportions give almost ideal results from every viewpoint. Ford practice has always been to increase the bore without increasing the stroke, and this practice is based, not on haphazard or "guess" but on more exhaustive experiments than perhaps any other American designer has devoted to the matter. Such a motor,

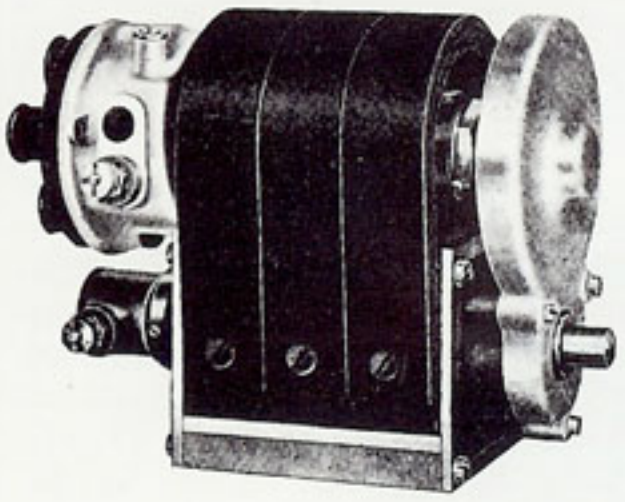
pound for pound of metal, develops more power, lubricates better, wears longer and runs sweeter than one in which the opposite theory of long stroke, small bore is carried out.



At the end of each downward stroke the pistons project into crank-case so that the fullest value is obtained from the splash lubrication which, for working engine parts, has never been equaled for certainty of action and liberality of oiling.

LUBRICATION is effected by means of a mechanical, positive feed oiler. Eight individual pumps serve to force the oil to each of the six-cylinders, to the crank-base to maintain a uniform level there, and to the ball joint within which is enclosed the single universal joint in the drive system.

This lubrication system gives perfect results. The level in the crank case is maintained not only by the oil fed by one of the pumps devoted to that purpose alone, but by the surplus oil which, fed to the different cylinders, drips into the case. All gears being enclosed, run in an oil bath. The lower half of the crank case is divided by partitions so that it is impossible for all of the oil to run to the back of the engine when ascending grades and as the feed to the case is at the front end, the oil must overflow each partition in turn to get to the rear end. This insures perfect lubrication at all times, regardless of grades or other road conditions. Provision is made for filling the transmission case with oil, packing the rear axle and differential with heavy grease and oil cups are provided at every working part throughout the entire car.



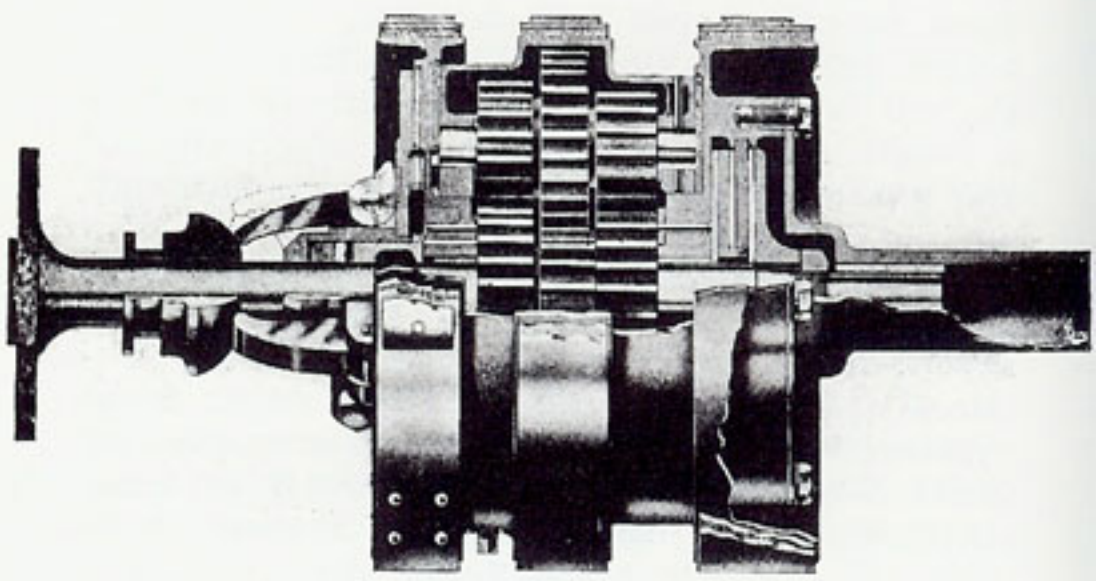
Magneto.

IGNITION — It must be rather monotonous to the reader to have a designer constantly claim priority in the application of various features of automobile construction; so,

great as the temptation is, we will not press our claims to having originated the double system of ignition. We will simply remind you of the criticisms made by other builders on the double row of spark plugs with which last year's six-cylinder Ford Model was equipped, which criticisms serve to prove, if nothing else, that in this important departure Ford was first. It was said that one set of plugs would become foul while the other was working; that twelve plugs would give twice as much trouble as six—six, fifty per cent more trouble than four and so on through the entire list of A B C arguments calculated to impress those who do not stop to think just what do constitute the majority of troubles of an automobile engine.

It had not occurred to our critics that the reason a plug continues foul in an idle cylinder, is because the cylinder is idle. Could a few charges be exploded in that cylinder, the oil or water or carbon deposit would soon be burned off and the plug be ready for service again. This is just what the extra set of plugs does. The Ford Model "K" is equipped with the Holley high tension magneto. This magneto is the simplest that has ever been devised, the most certain in its action and delivers a spark of such volume and heat that if, when running, the current is switched from battery to magneto series, the speed of the car is instantly accelerated to a surprising degree.

A storage battery is furnished for use in starting the motor or for emergency use but the magneto furnishes current for constant service



Ford spur-planetary transmission.

and the engine may even be started on the magneto if desired. The magneto operates through a single non-vibrator coil while a sextuple coil is a part of the battery system. That this dual ignition system has been copied even to the two sets of plugs, by several of the most prominent designers, both European and American, is sufficient guarantee of its superiority over all previous practice.

Carburetor

Carburetion is no longer a serious problem. There are many good carburetors on the market and a brief trial with any one of them is likely to convince one that each is better than the last.

The development of the six-cylinder motor has solved many problems which arose from the uneven draught of four or less cylinders on the carburetor. The six-cylinders draw constantly and evenly, so that it is a much simpler problem to obtain a uniform mixture and an automatic compensation for all engines speeds. The 1907 Ford carburetor is automatic in its action and enables the engine to be started on the spark almost every time; in this respect it is superior to that of last year's six-cylinder Model.

Transmission

Doubtless there will always be differences of opinion as to the relative merits of the planetary transmission versus the straight sliding gear, the individual clutch, the "selective" type of sliding gear and various other devices, each of which performs its functions in a more or less satisfactory manner. The points which the layman usually considers are simply those of more or less speeds— two, three or four. If he drives the car himself, he takes into consideration ease of control. These are primary considerations; but there are others of quite as great importance and of more real interest to the man who pays the bills than any of the above. Not only must the life of the device itself be taken into consideration but also its action on rear axle gears and other parts of the car. We have not space here to go into a lengthy argument as to the superiority of the planetary system as we see it—although we shall be glad to furnish the reader with a special treatise on request. Is it not sufficient that Henry Ford, one of the most prominent designers in the world, and who today produces more automobiles than any other manufacturer, after having used his particular form of spur-planetary gear in over 8,000 cars, still adheres to the planetary transmission?

An erroneous impression is abroad to the effect that cheapness is a consideration. If that were so, we would use the sliding gear, for a transmission of that type can be made for a little less than half what it costs to build the Ford planetary transmission. We may grant that where, owing to insufficient power or a lack of flexibility in the motor, more than two speeds are necessary to negotiate crowded city streets or heavy grades on country roads, the sliding transmission is perhaps the best solution But one of the chief features of the

six-cylinder motor is its wonderful flexibility and its excess of power at slow speeds as well as high. This quality enables the car with its full load to negotiate congested city streets at an extremely slow pace by throttle control alone and without the necessity of resorting to disengaging clutch or the gear changing nuisance. In the matter of control the planetary transmission has never had a rival. It is "velvety" in its action, starting the car from a standstill so smoothly as to be almost imperceptible to the occupants and permitting of the high speed clutch being engaged with equal facility and smoothness. There is no limit to the dimensions of gears in the planetary transmission and there are always three teeth in mesh—as against one in a sliding-gear device. No one ever heard of a planetary gear being stripped and if properly lubricated, the Ford planetary will outwear any other part of the car, regardless of use or abuse. All gears made from special Vanadium-chrome steel, our own formula, heat treated and hardened.

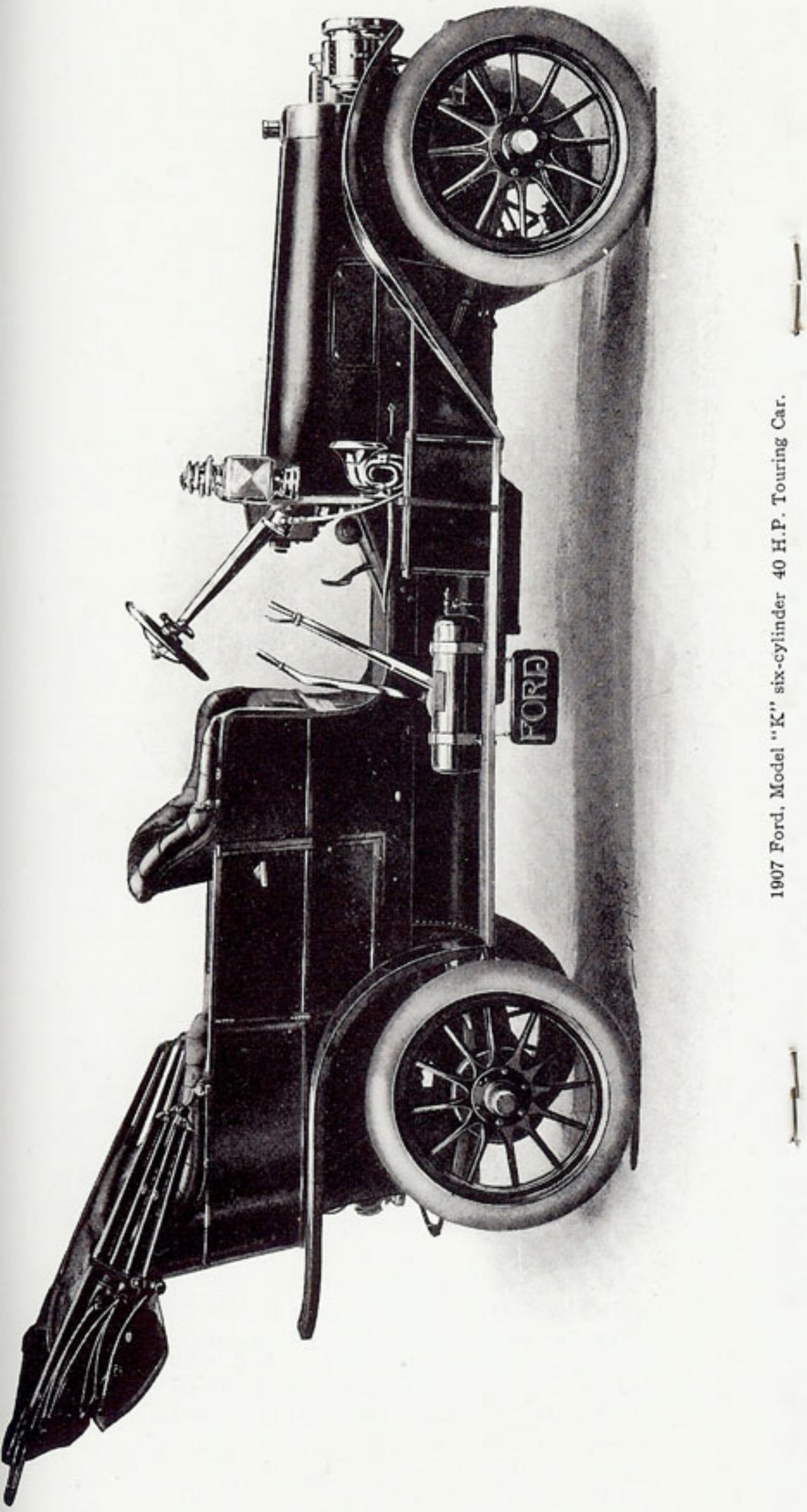
Flexible Joint

A flexible connection between transmission and engine shafts takes the place of the rigid construction used in some of the earlier 1906 models. This joint is capable of a universal movement in a restricted sense and has ample radius to relieve the shafts of all twists and strains due to unevenness of roads or varying loads, thus eliminating all liability of crystallization while at the same time affording a practically solid power transmitting member.

Final Drive

A technical writer in one of the most prominent German Automobile Trade Journals recently observed that **"the Ford system of final drive is the only really original and adequate solution of the vexatious problem of delivering power from transmission to wheels. It is the only one that permits of every part—universal joint, driving shafts, gears and axles being enclosed in an oil tight and dust-proof housing; which requires the use of only one universal joint; which insures absolutely perfect alignment at all times; which allows the axles to rotate and oscillate in any direction around one point, concentric with which is the axis of the universal joint; and which permits of the use of full-elliptic springs flexibly connected to the frame"**—the only springs that are at all suitable for rough American roads.

This Ford axle and final drive stystem is now patented in all countries and is so broadly



1907 Ford, Model "K" six-cylinder 40 H.P. Touring Car.

covered that, despite ingenious attempts of many competitors to **copy results without infringing the patents,** none has so far been able to do so.

Rear Axle

Simplicity, accessibility and efficiency are the three fundamentals of the Ford live rear axle construction. The differential gears and other members have a large factor of safety.

The driving gears have very broad faces, are of large pitch and all are made from Vanadium-chrome steel, carefully planed and case-hardened. The axles run on Hyatt Roller bearings of the indestructible type, end thrusts being provided for by the use of thrust ball bearings, each bearing containing forty-eight large balls—⅝ and ¾ inches—the larger ones being back of the beveled drive gear. The outer axle ends are tapered to receive the wheels which are then securely held in position by keys, lock-nuts and cotter pins.

Front Axle

The front axle is a one-piece drop forging. It is in "I-beam" section in which form we obtain the maximum of strength with minimum weight. Spindles are also drop-forged from the same special steel and are of large dimensions. In fact there is an unusually large safety factor in every part of the 1907 Ford Models.

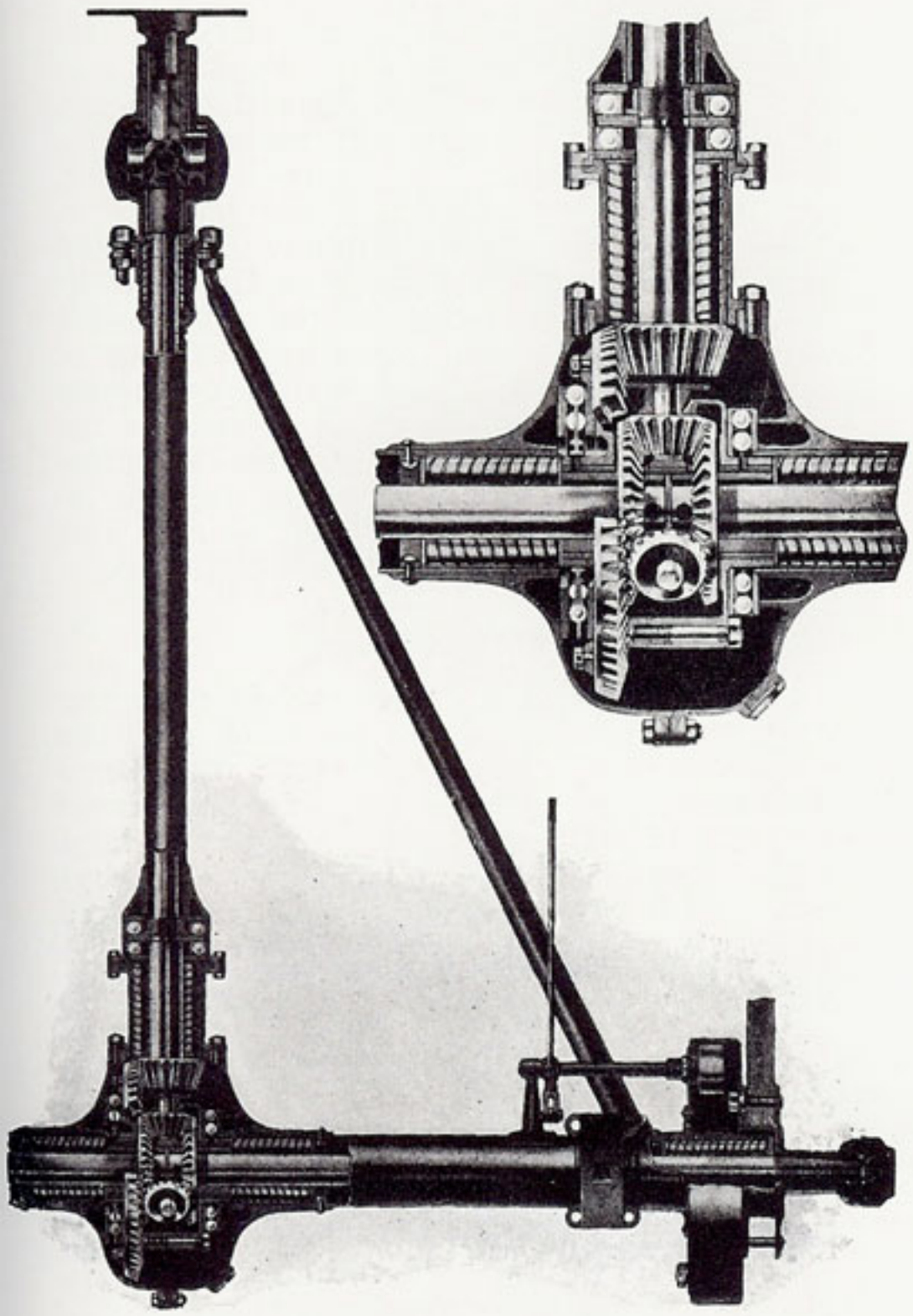
Springs

More and more are American motorists coming to realize that the full elliptic spring is the only type that is at all adaptable to rough usage over American roads. The slavish copying of foreign practice in this regard is rapidly declining for it has been proven that, no matter how long a straight semi-elliptic spring may be made, it still does not afford the easy riding qualities of the shorter full elliptic type. Owing to the side strains of steering, the semi-elliptic spring is better adapted to the service of front springs on a large car but inasmuch as the passengers do not have to ride there, the objectionable features are not so apparent. The 1907 Model "K" Ford springs are superior to anything ever heretofore applied to automobile use. They are made from a special steel, Vanadium-chrome, with a high percentage of manganese, our own formula, and heat treated in our own furnaces.

Steering

When the motor balks, clutches stick, brakes or any other parts fail, the skillful operator can still get out of the worst places in

safety if only he has a steering gear on which he can rely. Failure in this vital part, however, will almost certainly result in serious consequences. A steering gear that requires a firm hand to keep it from switching back



Ford final drive system (patented in all countries) showing rear axle, differential and integral joint.

and forth at every inequality of the road, eliminates much of the pleasure of motoring—it becomes work instead of play.

Irreversibility—the inability of the road wheels, on striking an obstruction, or falling into a rut, to reverse the gear or, in an unguarded moment, wrench the steering wheel from the hands of the operator—is a desirable, an essential quality in any automobile, be it heavy touring car or light runabout.

There is really no such thing as an irreversible steering gear. The term as applied is a relative one only. Practically irreversible, is the better term.

The wear is not uniform in a steering gear for obvious reasons. The greater wear takes

place at one point—the straight ahead position. The road wheels oscillating back and forth—they must have a little play in order to "find" the smoothest road, else they would cut diagonally across ruts and wagon tracks to the very great detriment of the tires and the discomfort of passengers—keep up a constant pounding on the teeth. The consequent wear shows itself in the tendency of the wheels to wobble badly when the car is running straight ahead. Turn the wheels ever so slightly and the looseness disappears. It is impossible to take up wear at this point without causing the gears to bind when turning a corner—and the experienced driver devoutly prays to be delivered from a steering gear that is inclined to stick at a critical moment.

To eliminate these faults—to devise a steering gear that should be irreversible in practice and yet not so on account of friction, and one that should therefore require less effort on the part of the driver to steer his car over heavy or rough roads—was a task Henry Ford set himself.

With characteristic disregard for precedent and with that wonderful inventive faculty that is exemplified in every part of the Ford cars, he evolved the Ford planetary steering gear. The patent rights to this device are alone worth a fortune—its practical application to motor cars is a boon to the motorist. It renders the Ford car the most easily and positively controlled car ever made. The gears, instead of being placed below the frame and behind the road wheel where they collect mud and grit, are at the top of the steering column and just within the dish of the hand wheel. By unscrewing a gnurled brass cap, with the fingers, the gears are exposed for inspection or lubrication. Running always in oil and protected from sand and dust, they won't wear out in the lifetime of the car. Adjustment is unnecessary, for the duty is even on all teeth. But, if for any unforseen reason—lack of oil or other neglect—the gears should wear they could be replaced for a few cents and in a few minutes without the use of a tool or the soiling of the hands.

Brakes

The Model "K" car is exceptionally well equipped with means for stopping under all conditions. A service brake acting on the transmission shaft and operated by a foot lever will stop the car as gently as desired or lock and slide the wheels at the will of the driver and with little exertion on his part.

FORD

Emergency brakes are of the internal expanding type, acting on pressed steel drums attached to the rear hubs. They are packed with oil which serves to prevent gripping, excessive wear, and at the same time to make them hold better when fully engaged. The contact is camel-hair belting on steel.

While not always the best practice, the reverse may safely be used for a brake if desired and as such is most efficient.

Frame

The 1907 Model "K" frame is made from the highest grade of chrome steel, and is deeper and of heavier gage than that of the 1906 Model. No amount of over-loading or service will result in the springing of this frame, and we can conceive of no possible working conditions which would buckle or break it.

Wheels

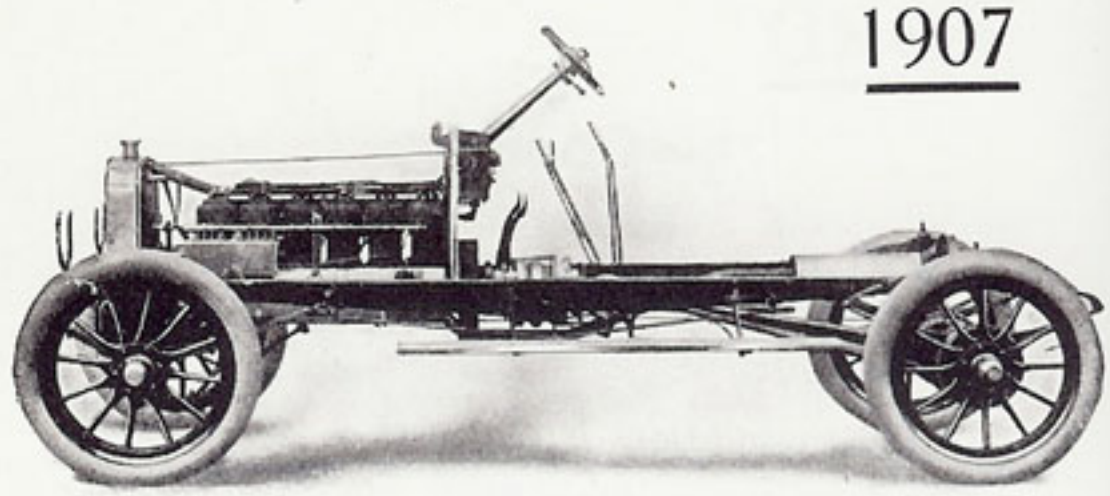
Wheels of the approved artillery wood type with hubs made heavier than heretofore to withstand the shocks and strains of high speeds over rough roads.

Tires

Front and rear wheels are shod with 34″ by 4″ clincher tires. That we do not specify other makes of tires is not because of prejudice but for the reason that our output is so great that we must adhere to standard forms in order to avoid serious and costly delays which frequently arise through customers specifying other than standard types. The weight of car and passengers being admirably distributed between front and rear wheels, makes for economy in tire consumption, and the standard equipment of the Ford Model "K" is ample for all requirements.

Fenders

Following the latest development in fender design, the Model "K" fenders enclose the entire car from front to rear. Patent leather guards join fenders to body, serving the dual purpose of flexibility and muffling the "drumming" sound which is always noticeable in all-metal fenders. Concaved sheet metal risers join the running board to the body and all dust, oil and other objectionable matter are thereby excluded from the car and its occupants, when riding or entering the car.



1907 Model "K" Chassis—left side.

Gasoline Capacity

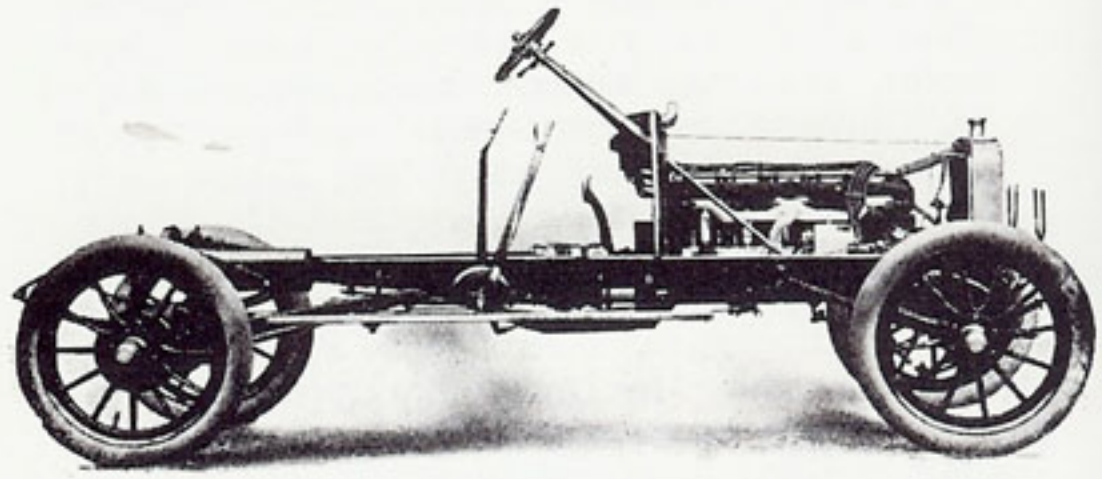
The gasoline tank is located under front seat; capacity fifteen gallons—sufficient for about 150 miles of ordinary touring—200 miles over good roads or city streets. The gasoline is gravity fed to the carburetor.

Muffler

The well known Ford design, simple and so efficient it sounds like—silence.

Control

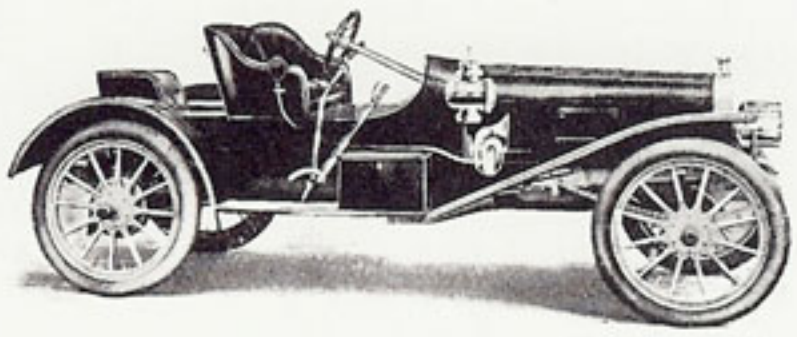
Ford cars are proverbially simple to master and easy to control. The Ford six-cylinder touring car can be as safely driven by a lady as by a skilled chauffeur—and many of them are so driven. A single lever at the side of the driver serves for the low and high speeds, with neutral position between; a foot lever operates the reverse. Almost no effort on the part of the driver is required to engage the different speed clutches and the skill necessary can be acquired in fifteen minutes by anyone of average intelligence and regardless of mechanical ability. Spark and throttle levers are located at the right and left sides, respectively, of the steering post, just below the steering wheel and in such a position that they may be operated by the index fingers without removing the hand from the wheel or releasing the hold even for an instant. All speeds from four miles an hour to a mile-a-minute, may be obtained by simple manipulation of the trottle lever.



1907 Model "K" Chassis—right side.

Cooling

The 1907 radiator has nearly twice the capacity of the 1906 model; circulation system has been refined throughout and the gear pump of last season has been replaced by a centrifugal pump gear driven from the cam-shaft. Positive circulation of the water and adequate cooling under all conditions is therefore assured. A belt driven fan serves to keep the water cool when motor is running idle and fan-shaped spokes in the fly-wheel exhaust the warm air from under the hood. The present arrangement of the exhaust pipes—over the inlet—removes the heat from the magneto and thereby eliminates all liability of trouble from that source.



Ford "Six Forty" Runabout

This six-cylinder roadster is built in response to repeated demands for a gentleman's runabout that shall embody the most advanced principles of motor car construction. The six-cylinder motor with its constant torque and total lack of vibration gives a smoothness of control and sweetness of running unobtainable in any other type.

120-inch wheel base and special Vanadium-chrome-manganese springs afford unequalled riding qualities, while the flexibility of the motor enables the driver to accelerate the car from zephyr to a cyclone speed almost instantly.

In a word, the Ford "Six-forty" roadster represents finality in the popular high-powered runabout type of car. The number is limited —50 only will be made—so the order should be filed at once if you covet one.

Six-cylinder motor, forty horse power at the wheels. A mile a minute easily—seventy miles an hour if you care to go so fast. Same motor, axles and chassis throughout as Model "K" touring car, but special springs; "racy" slant to steering post; seats low; rakish body; high sides to exclude eddy-currents; detachable rumble seat—when removed, touring trunk can be substituted; inclosed fenders—full length of car. 36x4-inch tires—a silent cyclone when you open her up. Planetary transmission—any speed without changing gears or disengaging clutch.

$2,800

Vanadium Steel

For the past two years American motor cars have led the world in originality of design; simplicity of construction and control; and Ford cars have always led the American contingent.

There was one place, however, where we had to admit, in all candor, we were weak. That was the matter of metals—particularly steels capable of meeting the severe conditions.

The motor car industry, while of considerable importance, still was insignificant as compared to other steel-working industries and its demands for special steel were at the same time so exacting and so small, our steel mills, occupied turning out million-ton lots of commercial carbon steels, did not care to bother with it.

The first problem of the American manufacturer who aspired to build motor cars from the ground up—from the ore to the perfected machine—was to attain a position in quantity production where his needs would be of sufficient magnitude to constitute a factor, so that steel makers would gladly take his contract for special alloy steels, or he could afford to install his own plant and make it himself.

That was the Ford plan from the first. That it has taken less than four years to work it out, to realize this part of Ford's ambition, is one of the romances of the trade.

Vanadium being, heretofore, unobtainable, motor car makers have used such other alloys as most nearly met their requirements, among these being nickel and nickel-chrome steels.

In common with other high-class concerns, we have used nickel-chrome alloys for the last two years—more particularly in the 1907 six-cylinder models.

But while showing well in static tests—high tensile strength, power to carry a heavy load or to withstand a slow, even bending stress—nickel-steel has been found woefully deficient in dynamic qualities—in ability to withstand sudden shock, alternating stresses, torsional strains and (most important of all in a motor car), vibration, which, in a few months sets up fatigue, the outward and visible sign of which is crystallization.

So, while we used nickel alloys for want of something more adequate to our special needs, we were diligently searching for the ideal. At the same time we were widening our market by means of prices that appealed to reasoning men. By thus enlarging our market—increasing the demand for Ford cars—we made possible our plans for theretofore undreamed-of quantity production of motor cars. Our steel consumption grew until now our requirements

amount to 280 tons per month. This placed us in a position to manufacture our own steel, and to make it from such formulæ as will best meet the requirements in each particular part —springs, axles, crank-shafts, gears, frames, etc.

By a happy coincidence, just at a time when we were searching for an element that would impart higher dynamic properties to steel, a large deposit of Vanadiforous ore was opened up in South America. This placed the wonder-working element, Vanadium, within our reach on a commercial basis. In other words, we are now able to make and incorporate in Ford cars a special steel, the cost of which has heretofore been so great as to make it "commercially impossible." Until within a year the entire world's output of pure Vanadium has been less than 200 pounds per month. In consequence its value has been many times that of pure gold. Now, it is produced for about half the price of silver. And, since it is used only in "homeopathic doses," in steel making, Vanadium-steel can be made for about the same cost as the best grades of nickel-steel and other expensive alloys, to all of which it is incomparably superior.

Unlike nickel, Vanadium steel machines as easily and uniformly as low carbon steels, and works beautifully under the forging hammer and dies. A higher percentage of Chromium may also be used than is safe when Vanadium is absent.

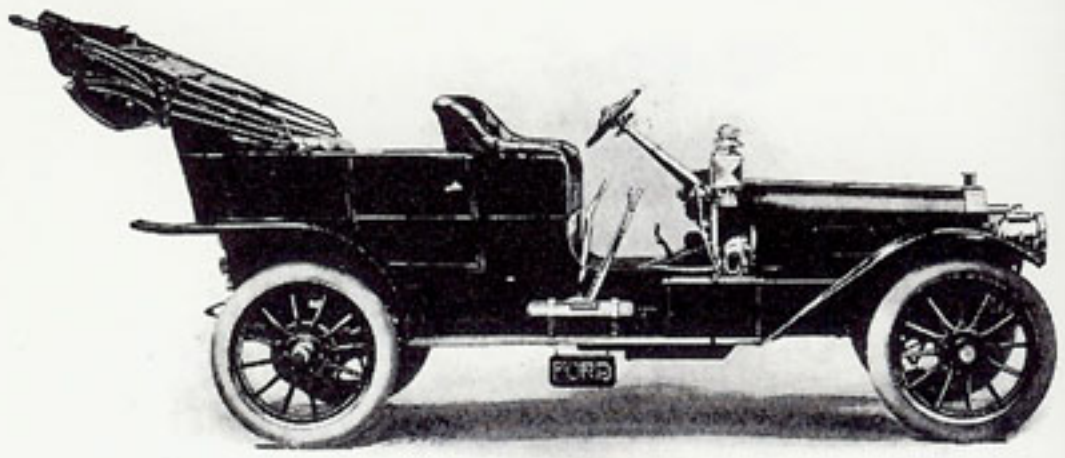
Vanadium steel is now being put in all Ford models. We already use it in springs, axles and gears, and as rapidly as possible it will take the place of every other carbon or nickel-steel parts in all Ford models, regardless of price. Let others follow as soon as they can—we reckon they are about a year and a half behind at present writing.

We'll be glad to send interested persons a treatise on Vanadium.

HEAT TREATMENT

By scientific heat treatment, the original efficiency of all kinds of steel can be about doubled. This process is not very expensive, but the "know how" is scarce. We belive we are the first to appreciate the value of heat treatment of all steel parts after forging or pressing. All Ford material is subjected to this "doubling the efficiency" process before machining. We also more than double the efficiency of cast iron parts, such as cylinders and pistons, by properly annealing them, and of babbitt metal, bronze and other alloys by other special treatment; thus babbitt bearings, for example, in Ford cars are incomparably superior to the babbitts, "White Bronzes" and other commercial alloys.

Model "K" Specifications



MOTOR—6 cylinder, vertical, 4 cycle.
HORSE POWER—40; bore 4½ inches, stroke 4¼ inches.
CYLINDERS—Individual. Water jackets integral.
VALVES—Inlet and exhaust offset; all on right side.
CAM SHAFT—One piece nickel-steel forging. Twelve cams integral. All bearing surfaces hardened and ground.
CRANK SHAFT—Set at 120 degrees. Drop forging from chrome nickel-steel specially treated; no welds. Bearing surfaces ground.
CRANK CASE—Aluminum; divided horizontally.
COOLING—Water, centrifugal pump, gear driven.
ENGINE GEARS—All enclosed.
IGNITION—Jump spark. 2 separate systems, consisting of (a) Holley high tension magneto with single, non-vibrator coil; (b) Storage battery with sextuple vibrator coil.
FLY WHEEL—65 pounds only—thanks to even torque and "overlapping impulses" of 6 cylinders.
FLY WHEEL CLEARANCE—14 inches.
CARBURETOR—Ford design, float feed, automatic.
LUBRICATION—Mechanical oilers, 8 units; individual pumps for cylinders. Also splash system in engine base.
CLUTCH—Multiple disc.
TRANSMISSION—Ford planetary system; no internal gears, all spurs. Gears made from chrome nickel-steel, hardened.
FINAL DRIVE—By cardon shaft with single universal joint to bevel drive gears in live rear axle. Ford three point system (patented in all countries) with all moving parts enclosed in dust proof casing, running in oil.
FRONT AXLE—One piece steel drop forging in I-beam section, specially treated.
FRAME—Nickel-steel. Cold pressed, extra heavy.
STEERING—By Ford reduction gear system; irreversible.
BRAKES—2 sets. (a) Service band brake on transmission. (b) Internal expanding brakes in rear hub drums.
OPERATION AND CONTROL—High and low speeds by hand lever at right of driver; reverse by foot lever; service brake by foot lever; emergency brakes by hand lever at side, ratchet lock.
SPARK AND THROTTLE—Give all speeds from 4 to 60 miles.
WHEELS—Artillery wood type. Hubs extra strong.
TIRES—Pneumatic; Clincher, 34 x 4 inches.
NUMBER OF PASSENGERS—Normal load, 5 adults.
SPRINGS—Front: semi-elliptic. Rear: full elliptic.
FENDERS—Enclosed full length of car.
DUST PAN—Protects all machinery from mud and grit.
WHEEL BASE—120 inches. *TREAD*—56 inches.
GASOLINE CAPACITY—15 gallons.
STANDARD EQUIPMENT—Side oil lamps and tube horn.
PRICE—$2,800 F. O. B. Detroit, Mich.
WITH EXTENSION TOP, side curtains and storm front, pair gas lamps and generator, $3,000.

FORD

Model "N" Specifications

MOTOR—4 cylinder, vertical, 4 cycle. 15-18 h. p.
HORSE POWER—15; *BORE* 3¾″; *STROKE*—3⅜″.
VALVES—Inlet and exhaust offset; all on left side.
CAM SHAFT—One piece steel forging. Eight cams integral. All bearing surfaces hardened and ground.
CRANK SHAFT—One piece steel forging, ground.
COOLING—Water; centrifugal pump, gear driven.
IGNITION—Jump spark—batteries.
CARBURETOR—Ford design—float feed, automatic.
LUBRICATION—Force feed oiler.
CLUTCH—Multiple disc.
TRANSMISSION—Ford planetary system; all spurs.
FINAL DRIVE—By cardon shaft with single universal joint to bevel drive gears in live rear axle.
FRONT AXLE—One piece steel drop forging in I-beam section specially treated.
FRAME—Pressed steel.
STEERING—By Ford reduction gear system.
BRAKES—Two sets, transmission and hub.
TIRES—Pneumatic; standard equipment 28″x3″.
DUST PAN—Protects all machinery.
WEIGHT WITH TANKS FULL—1050 pounds.
WHEEL BASE—84″. Tread 56″.
BEARINGS—Phosphor bronze and babbitt in motor, Hyatt roller in rear axle. Large balls in front hubs.
GASOLINE CAPACITY—8 gallons.
PRICE—28″x3″ tires, (without top, lamps or horn), $600. F. O. B., Detroit, Mich.
CATALOG of tops, lamps and other accessories for the asking.

Model "R" Edition-De-Luxe

Motor and outer chassis same as Model "N", but fitted with 30″x3″ tires (instead of 28″x3″), has large body—wider seats, more room under "rear deck," large semi-inclosed fenders connected by running board, and standard equipment includes 6-volt storage battery, one set dry cells, side oil lamps, oil tail lamp and French tube horn.

Price $750 F. O. B. Detroit.

SO great is the demand for catalogs of Ford Runabout models, our requirements keep the presses running constantly. To send catalogs, elaborately printed and treating of our high-priced touring car models to every inquirer—most of whom are concerned only with the runabouts, would be a needless extravagance, the cost of which Ford customers would, of course, have to pay in the end.

We therefore issue separate catalogs for each Ford Model. This puts the information you desire in concise form.

Brief specifications of each 1907 Ford Model will be found on the last three pages of the different catalogs—persons interested in other models than "K" will be cheerfully furnished with catalogs on request. Ask for catalog "R" or "N" as case may be.

1907 Ford Models.

Model "N"—world famous four-cylinder runabout . . $600

Model "R"—"edition de luxe of Ford runabout" . . . $750

Model "K"—six-cylinder, 40 h. p. touring car . . . $2,800

Model "K"—"Six forty" runabout $2,800

Prices F. O. B. Detroit.