

HYDE W. BALLARD

CATALOGUE

THE
WHITE
STEAM CAR



1905.

HYOE W. BALLARD



THE WHITE STEAM CAR

MANUFACTURED BY THE

WHITE SEWING MACHINE COMPANY

CLEVELAND, OHIO, U. S. A.

B R A N C H O F F I C E S

42-44 WEST 62ND STREET, - - NEW YORK CITY

1878 MARKET STREET, - SAN FRANCISCO, CAL.

509 TREMONT STREET, - - - BOSTON, MASS.

74 FARRER, STREET, - - - - DETROIT, MICH.

35 KING STREET-REGENT STREET, - - LONDON-WEST, ENGLAND

White Steam Car

IN this introductory paragraph to our 1905 Catalogue we would call special attention to the changes that have been made in the Model E Car for 1905.

No change has been made in the White system of generation, which is the characteristic feature of the White Car.

In the various conditions of roads which have obtained in the reliability trials both in America and Great Britain, in hill-climbing competition and in track events, the White system has proved itself equal to every demand, and invariably brought the White through to victory.

The White is the only car that has met with such unqualified success on both sides of the Atlantic, and this uniformly fine performance has been achieved by all cars of our make entered and not by an individual car.

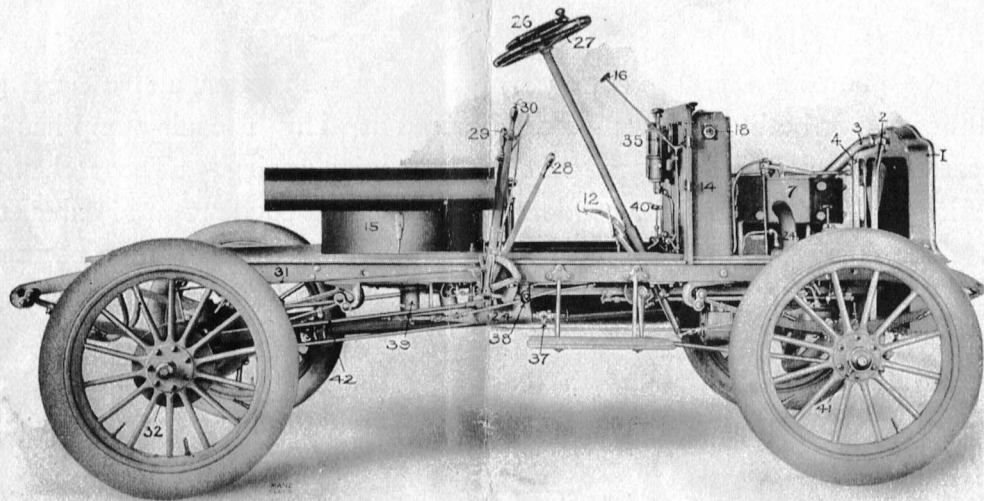
The changes in the Model E Car are changes in design and construction only. The 1905 Car is larger, has greater seating capacity, longer wheel base and larger wheels.

The engine has been made stronger, and a light fly-wheel added which stops all rattle in the

driving shaft. Two pumps are used to supply the generator with water, and a hand by-pass valve is so arranged that one or both of the pumps can be used at will. The air-pump has been changed to greater capacity and made an integral part of the engine casing. These changes make the pumps more efficient. A fan behind the condenser insures good condensation of exhaust steam under all conditions. The changes in the condenser make it quite easy to clean when necessary.

The greatest change has been made in the power transmission. An emergency gear has been combined with the rear axle, so that in ordinary running the drive is direct, but if desired the engine can be run free, or the ratio of the engine to the rear axle changed. By throwing in the emergency gear the speed of the engine is doubled for the same forward speed of the car, consequently the pumps are working twice as fast and delivering twice the amount of water to the generator. By running the engine free both water and air power pumps are operative and hand pumping is unnecessary. There is generally enough steam to run the engine free even though there be not enough to start the car, and except the car has been thoroughly drained the hand pump will not have to be used.

The same care in design, selection of material, and close inspection of workmanship has been observed as in the past, and in the equipment and finish no expense has been spared to maintain the White Steam Car in its enviable position as the premier car, regardless of motive power.



CHASSIS

Rated Horse Power	-	-	-	Fifteen
Length	-	-	-	11 feet, 7½ in.
Width	-	-	-	5 " 3½ "
Height (stripped for shipping)	3	"	10	"
Wheel Base	-	-	-	7 " 9 "
Tread	-	-	-	4 " 8 "

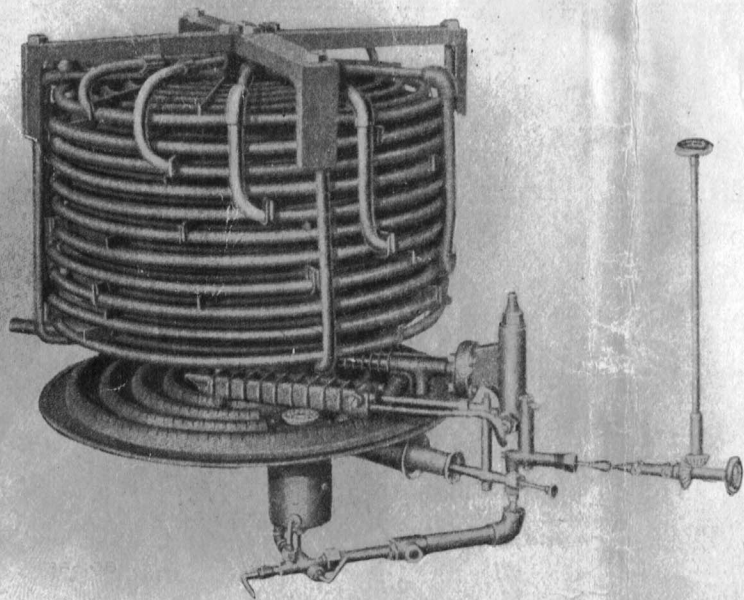
Diameter of Wheels	-	-	-	34 in.
Tires (Clincher)	-	-	-	34 x 4 "
Water Tank Capacity	-	-	-	17 Gals.
Gasoline Tank Capacity	-	-	-	15 "
Weight Empty	-	-	-	1600 lbs.
Weight Filled	-	-	-	1833 "

Price \$2,000.00, F.O.B. Cleveland, complete with Tires and Tool Kit.

The Generator

THE "White Steam Car" is equipped with a steam generator which must not be confounded with a steam boiler, as it has none of the disadvantages which are peculiar to the latter.

It consists of a series of helical coils of seamless steel tubing placed one above the other, separated for heating space and surrounded by a casing of insulating material. The heat is applied at the bottom by a burner. The coils of tubing are so constructed that the water entering at the top cannot pass through the succeeding coils below by gravity, but is held in upper coils subject to the action of the water pump. In this way we have a steam generator in which none of the conditions of a steam boiler exist. The water is forced into the top of the generator and is at all times in the top coils, while the steam is in the lower ones directly over the fire and passes out into the supply pipe to the engine. In this construction the upper coils practically act as water heaters and the water is converted into steam immediately at some *variable* point in the coils depending upon the amount of steam which the engine is using. There being no water level to maintain, consequently



no water gauge or glass is necessary. The generator is absolutely non-explosive and it is impossible to burn out the coils. All this is accomplished without the use of mechanical contrivances such as fuse plugs, etc.

The water supply is automatically controlled by the steam pressure acting on a diaphragm valve. When the steam pressure is above 375 lbs. the by-pass valve opens automatically, and closes in the same way when the pressure falls below that point.

The fuel supply is controlled automatically by a fire regulator placed in the steam pipe. This regulator shuts off the supply of fuel as soon as the steam surrounding the regulator reaches the temperature at which the regulator is set. The action of the regulator when the car is running is briefly thus: When the fire is on, the heat is passing around the coils and converting some of the water they contain into steam causing the pressure to rise, and as soon as it reaches 375 lbs. the by-pass valve automatically opens allowing the water discharged by the pump to return to the tank and not into the generator. No more water entering the generator, the fire soon gets the steam sufficiently hot for the regulator to shut off—when this occurs the pressure falls and when it gets below 375 lbs. the by-pass valve closes and water is again pumped into the generator. This water entering the top forces the water further down into the coils, the steam surrounding the fire regulator soon loses temperature slightly and the regulator opens, the fire comes on and the process is repeated. A slight variation of the temperature is all that is necessary to accomplish the above results. This system of regulation has been proven thoroughly reliable and the car can be run until the water supply is entirely exhausted, without the slightest damage to the coils or danger of explosion. The operator needs only to replenish the water tank and proceed as usual.

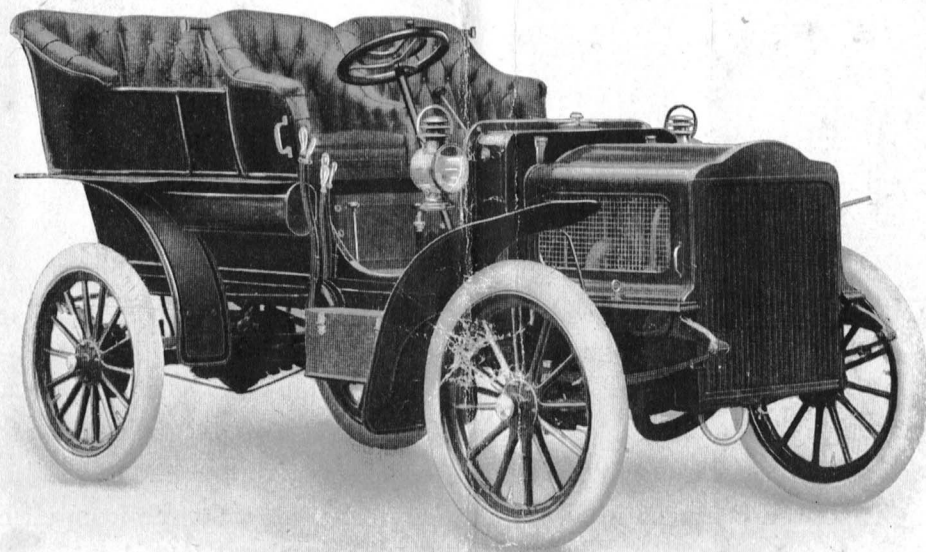
SPECIFICATIONS OF STANDARD TOURING CAR

Seating Capacity -	-	-	-	-	-	Five Persons
Rated Horse-power -	-	-	-	-	-	Fifteen
Length, over all	-	-	-	-	-	11 feet, 8½ inches
Width, " "	-	-	-	-	-	5 " 3½ "
Height -	-	-	-	-	-	4 " 9 "
Wheel Base -	-	-	-	-	-	7 " 9 "
Tread -	-	-	-	-	-	4 " 8 "
Diameter of Wheels -	-	-	-	-	-	34 "
Tires (clincher) -	-	-	-	-	-	34 x 4 "
Water Tank Capacity	-	-	-	-	-	17 Gals
Gasoline Tank Capacity	-	-	-	-	-	15 "
Weight Empty	-	-	-	-	-	2,200 lbs.
Weight Filled -	-	-	-	-	-	2,433 "

Price, \$2,500, F. O. B. Cleveland, complete with tires,
oil lamps, horn and tool kit.

The car will be equipped, without extra charge, with any American make of pneumatic tires that will fit the standard 34x4 clincher rim, provided the tire desired is specified 30 days before date of shipment of the car. Foreign tires that will fit the 34 x 4 clincher rims will be supplied on 30 days notice as above, and at the additional charge equal to the difference in the list price between the American and foreign tires. Where no specifications for tires are received the car will be equipped with any of the standard American clincher tires.

1905 Standard Touring Car



The Engine

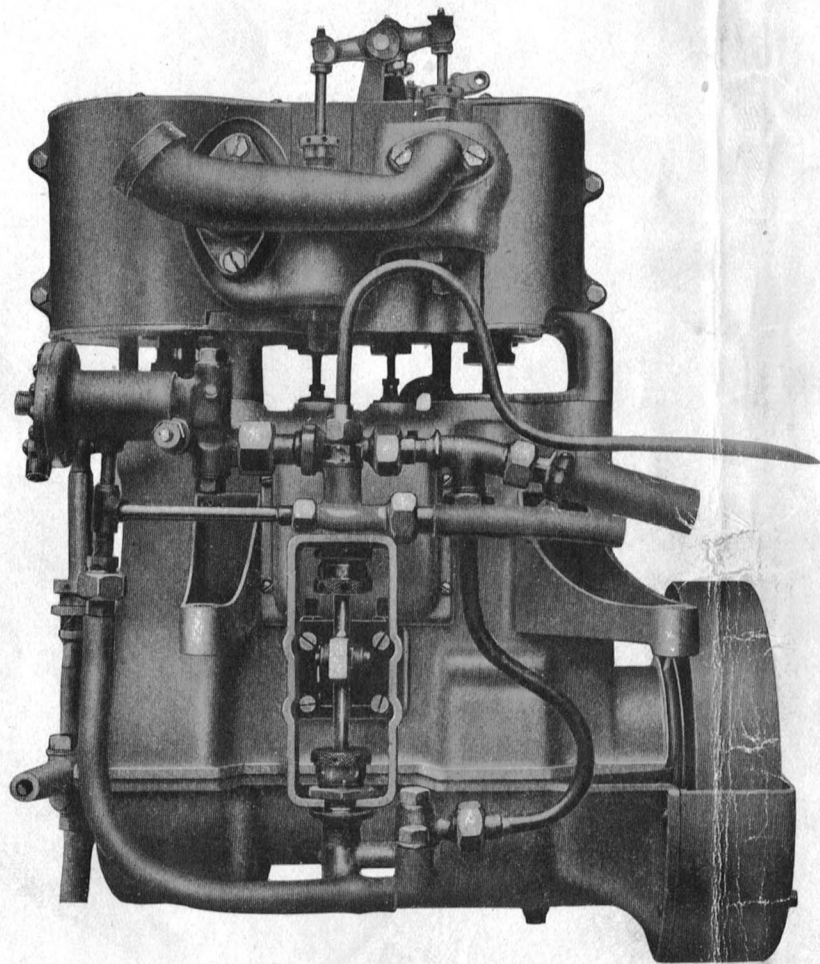
THE engine is compound, and so fitted that it can be instantly changed, by pressure on a foot pedal, to a simple engine, in which both cylinders are acting under high pressure. This simple engine is only used in starting and on occasions when a slow, strong pull is required.

For ordinary running the engine is always compound, and its economy in water and fuel consumption is truly remarkable.

The cylinders are insulated and covered with an aluminum jacket. The crank case is of aluminum and thoroughly enclosed. Thus it gains the advantage of splash lubrication and makes the engine impervious to dust and dirt, and at the same time allows easy access to the parts.

The valves are governed by a link motion, whereby the engine may be readily reversed.

The engine is so well balanced in all its parts as to be perfectly free from all motor vibrations when the car is running, and the exhaust steam is muffled so as to be absolutely noiseless. Hence, the "White" Steam Car is really noiseless and vibrationless, a combination of virtues frequently claimed, but rarely encountered,



Lubrication

The lubrication of the "White" Steam Car is automatic. The lubricator is fastened to the dashboard and is driven by a belt from the engine, and supplies oil both to the cylinders and to the crank chamber. The engine shaft runs in oil, the system of splash lubrication having proved highly efficient.

The rear axle is encased and the driving and compensating gears all run in oil.

A Few of the Whites

Some Awards to White Cars for Their Unequalled Reliability

FOUR FIRST-CLASS CERTIFICATES. Automobile Club of America—Endurance Contest, New York to Rochester, Sept. 9-13, 1901.

TWO FIRST-CLASS CERTIFICATES. Long Island Automobile Club—100-mile Non-stop Endurance Test, April 26, 1902. No stops for fuel or water.

A SPECIAL AWARD. For Novelty and Excellence. The "White" being one of two cars to finish with the greatest number of reliability marks. Automobile Club of Great Britain and Ireland—650-mile Reliability Trials, Sept. 30, 1902.

THREE FIRST-CLASS CERTIFICATES. Automobile Club of America—100-mile Non-stop Endurance Test, May 30, 1902. No stops for fuel or water.

FOUR GOLD MEDALS. Qualifying for President's Cup. FIVE FIRST-CLASS CERTIFICATES. Automobile Club of America—Reliability Contest, New York-Boston-New York, Oct. 9-15, 1902.

SPECIAL SILVER MEDAL. For Low Water Consumption. Automobile Club of Great Britain and Ireland—1000-Mile Reliability Trial, Sept. 18-24, 1903.

TWO GOLD MEDALS (OF EIGHT AWARDED). National Association of Automobile Manufacturers—New York-Pittsburg Endurance Run, Oct. 7-15, 1903. White Bulletin No. 2 is devoted to this Endurance Run and makes an exceedingly interesting compilation.

Pittsburg Endurance Run—New York to Pittsburg, 1903.

In this event four Whites, consisting of two contestants, a pilot car and a free-lance care, (driven by an amateur) finished, being four out of the eleven cars that reached the various controls on or before schedule time. When it is taken into consideration that thirty-two cars started and but eleven finished of which four were "Whites" the showing is remarkable, and demonstrates the stuff of which the White cars are made. Car No. 5 driven by Webb Jay made the best running time of the contest and was the first to reach Binghampton, Buffalo, Youngstown and Pittsburg. Of the eight medals awarded contesting cars two of them were won by the "White".

Mount Washington Hill-Climbing Contest and Two Days Non-stop Endurance Run, July 11-12, 1904.

A White Steam Car, driven by Webb Jay, was one of two cars in its class to win a Gold Medal in each of the above events. A White, driven by George H. Lowe of Boston, captured a Gold Medal for the Endurance Run, making two Gold Medals for Endurance Run and one for Hill-Climbing Contest.

St. Louis, Mo., August 21, 1904

The first prizes won by the White Steam Car were: Five-mile race for stock cars; a ten-mile lap race, for all types of cars under 1432 pounds in weight, and the five-mile race. Greyhound stakes for stock cars. In this event the White 10-horse power car defeated four 24-horse power cars and one 15-horse power. The second prize, open for all cars under 2204 pounds, was won by a White, in this race defeating a high priced 60-horse power car.

Steam Car Records

On August 27th a race meet was held at Delmonte, Monterey, California, in which the 10-horse power White steam car won fresh laurels. At Delmonte the White carried off the first prize for the principal event of the day, a five-mile open race in which four high-powered and expensive four-cylinder motor cars were competing.

Pittsburg, Pa., October 1st, 1904

The White won three first prizes out of four races entered. First, a two-mile race for all cars up to 24-horse-power with road equipment. In this race the White defeated four 24-horse-power and one 15-horse-power cars. Second, a cupid two-mile race contesting with cars all of which had 24-horse-power or over. Third, a two-mile race for cars up to 16-horse-power with road equipment.

Kansas City, Mo., Oct. 5th, 1904

The White won three five-mile races for Stock Cars with road equipment.

Cleveland, Ohio, Oct. 15, 1904

The White won two first prizes in which the White was the only car entered the horse-power of which was declared at less than 24.

Hill-Climbing in England

The Automobile clubs throughout England and Scotland nearly all hold annual hill-climbing competitions, many of which are run as handicaps.

In September, 1904, the Hertfordshire Automobile Club held a handicap hill-climb. The results were as follows: 1st, 10-horse-power White steam car; 2nd, 10-horse-power White steam car; 3d, 10-horse-power White steam car; 4th, 10-horse-power White steam car; 5th, 24-horse-power Leon Bollee; 6th, 20-35-horse-power Napier; 7th, 10-horse-power White steam car; 8th, 12-horse-power Wolsely, and 9th, 16-20-horse-power Martini.

Eagle Rock Hill-Climbing Contest

"The most noteworthy performance of the contest was the 1 minute, 23-3-5 seconds record, the fifth best time, made by Webb Jay in a 15-horse-power White Steamer. This little American car, which is not a racing machine, but practically a stripped touring car selling at \$2,500, climbed the hill in only 3-3-5 seconds slower time than the big foreign cars costing \$16,000 and having four times its horse-power."—*Brooklyn Daily Eagle, Nov. 25th, 1904.*

H. P.	CAR	VALUE	TIME
60	Renault	\$10,000	1 m. 20 s. (flat)
90	Mercedes	16,000	1 m. 20-3-5 s.
90	F. I. A. T.	16,000	1 m. 22 s.
90	F. I. A. T.	16,000	1 m. 22-1-5 s.
15	WHITE	2,500	1 m. 23-3-5 s.
60	F. I. A. T.	13,500	1 m. 24-4-5 s.

The wonderful achievement of the New Model White in the above contest only strengthens our claims that the White is capable of successfully competing with any car on the market in hill-climbing.

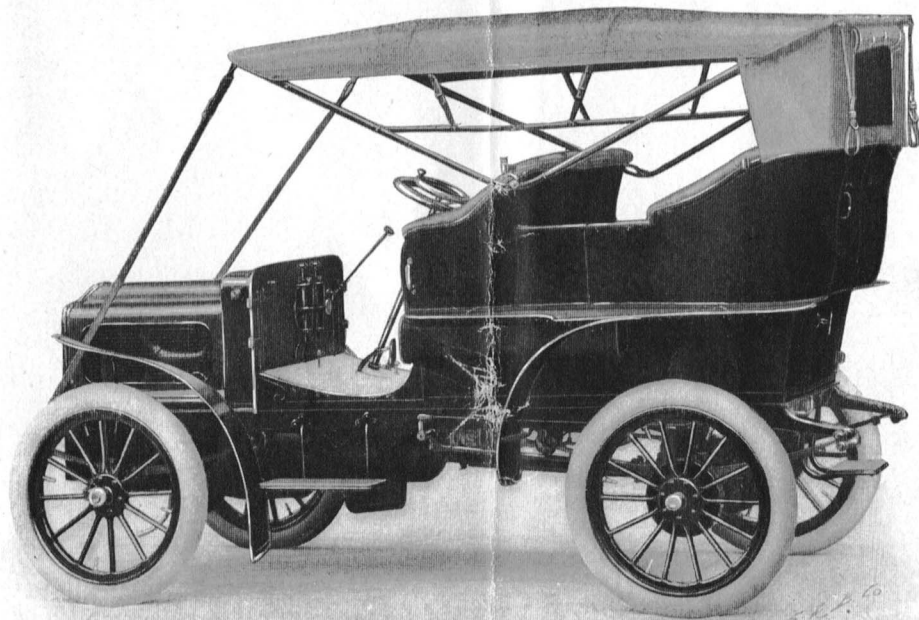
SPECIFICATIONS OF CAR WITH CAPE TOP

Seating Capacity	-	-	-	-	-	-	Five Persons
Rated Horse-power	-	-	-	-	-	-	Fifteen
Length, over all	-	-	-	-	-	11	feet, 8½ inches
Width	-	-	-	-	-	5	“ 3½ “
Height	-	-	-	-	-	7	“ 9 “
Wheel Base	-	-	-	-	-	7	“ 9 “
Tread	-	-	-	-	-	4	“ 8 “
Diameter of Wheels	-	-	-	-	-	-	34 “
Tires (clincher)	-	-	-	-	-	-	34 x 4 inches
Water Tank Capacity	-	-	-	-	-	-	17 Gals.
Gasoline Tank Capacity	-	-	-	-	-	-	15 “
Weight Empty	-	-	-	-	-	-	2,262 lbs.
Weight Filled	-	-	-	-	-	-	2,494 “

Price, \$2,600, F. O. B. Cleveland, complete with tires, oil
lamps, horn and tool kit.

The car will be equipped, without extra charge, with any American make of pneumatic tires that will fit the standard 34x4 clincher rim, provided the tire desired is specified 30 days before date of shipment of the car. Foreign tires that will fit the 34 x 4 clincher rims will be supplied on 30 days notice as above, and at the additional charge equal to the difference in the list price between the American and foreign tires. Where no specifications for tires are received the car will be equipped with any of the standard American clincher tires.

1905 Car with Cape Top




Fuel and Water Consumption

THE use of a steam generator producing steam at a uniform temperature and highly superheated, with a compound engine, has resulted in unprecedented economy in fuel and water.

The following extract is taken from a report of a test recently made by Prof. C. H. Benjamin, of Case School of Applied Science, Cleveland, Ohio, and shows the remarkable economy of the White System :

"The columns, to which I would call particular attention, are, first, the one showing the equivalent evaporation of boiler per square foot of heating surface per hour, which is between five and six pounds at full load, and second, the column showing the actual consumption of water per horse-power per hour, which varies from 12.6 to 19.0 as the brake horse-power decreases from full load to about one-third load. This is a remarkable showing for an engine of this size. Assuming the horse-power to have been 2 horse-power for driving the machine itself, we have the steam consumption per *indicated horse power per hour* as varying from 10.8 pounds to 14 pounds. When the fact is considered that ordinary simple engines use from 25 to 36 pounds per indicated horse-power per hour and that 12 pounds is considered good performance for triple-expansion condensing engines, the remarkable nature of this performance is better understood. Too much credit cannot be given for this successful application of superheating to automobile work. You will note also that the consumption of gasoline is only a little over a pound per horse-power per hour at full load." *Extract from report of Prof. Benjamin, on the test of a White Steam Car.*

water per H.P. per hr. = $\frac{60 \times L \times A \times N}{\text{volume of steam in lbs per cu. ft.}}$
 at the pressure a little before release, taking place on the indicator card.
 A = point where the pressure is taken. B the point where the parallel
 cuts the compression line. C the length of the line. D the stroke.
 atmosphere line. $x = \text{the ratio of } \frac{C}{D}$



The Burner System

THE generator is heated by a burner which works on the Bunsen principle, and is placed directly beneath the lower coil of the generator. The fuel is fed to the burner under a moderate pressure, which is maintained by a pump attached to the engine. On being vaporised, the fuel enters the burner, where it produces a blue flame, giving perfect combustion under all conditions. Incorporated with the burner, but distinct from it, is the pilot light, which performs the twofold office of heating the vaporiser and lighting the burner.

Getting up steam can be done in four minutes or less from the time when the pilot light is first lighted. A match is used for lighting the pilot light, which when lighted heats the vaporiser.

The main burner valve, which is within reach of the driver's seat, is turned on when the vaporiser has become heated. The main burner valve has no effect whatever on the pilot light, which cannot go out until turned off.

By the means of this system, the pilot light being constantly lighted and the vaporiser thereby always remaining heated, the "White" Steam Car can be immediately started after standing for a long or short period of time by simply opening the main burner valve.

SPECIFICATIONS OF CAR WITH CANOPY TOP

Seating Capacity	-	-	-	-	-	-	Five Persons
Rated Horse-power	-	-	-	-	-	-	Fifteen
Length, over all	-	-	-	-	-	11 feet,	8½ inches
Width, " "	-	-	-	-	-	5 "	3½ "
Height	-	-	-	-	-	7 "	9 "
Wheel Base	-	-	-	-	-	7 "	9 "
Tread	-	-	-	-	-	4 "	8 "
Diameter of Wheels	-	-	-	-	-	34	"
Water Tank Capacity	-	-	-	-	-	17	Gals.
Gasoline Tank Capacity	-	-	-	-	-	15	"
Weight Empty	-	-	-	-	-	2,309	lbs.
Weight Filled	-	-	-	-	-	2,542	"

Price, \$2,700, F. O. B. Cleveland, complete with tires, oil lamps, horn and tool kit.

The car will be equipped, without extra charge, with any American make of pneumatic tires that will fit the standard 34x4 clincher rim, provided the tire desired is specified 30 days before date of shipment of the car. Foreign tires that will fit the 34 x 4 clincher rims will be supplied on 30 days notice as above, and at the additional charge equal to the difference in the list price between the American and foreign tires. Where no specifications for tires are received the car will be equipped with any of the standard American clincher tires.

1905 Car with Canopy Top



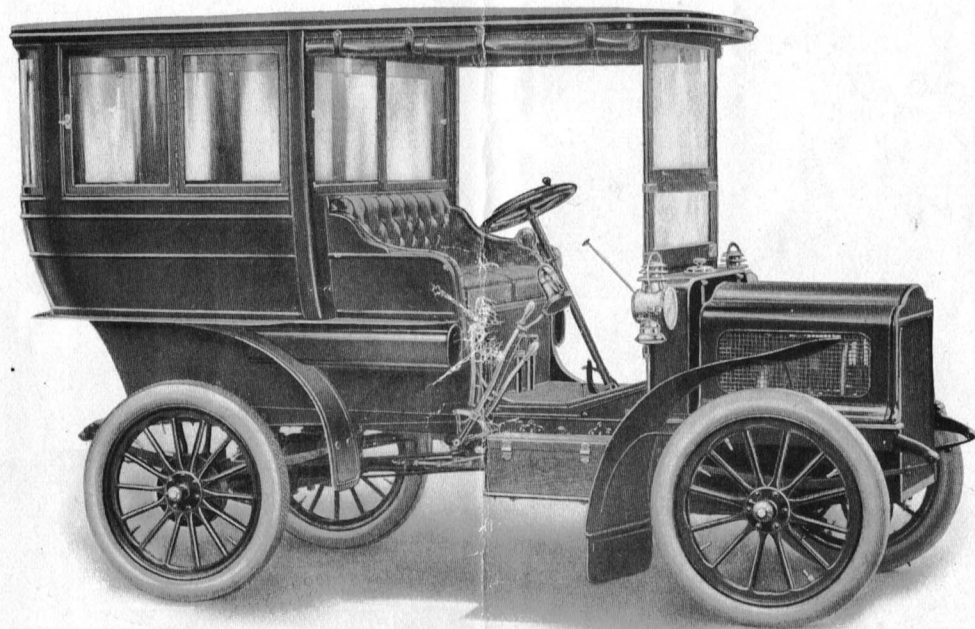
SPECIFICATIONS OF LIMOUSINE CAR

Seating Capacity	-	-	-	-	-	-	Six Persons
Rated Horse-power	-	-	-	-	-	-	Fifteen
Length, over all	-	-	-	-	-	11 feet, 11½ inches	
Width “ “	-	-	-	-	-	5 “	3½ “
Height	-	-	-	-	-	7 “	9 “
Wheel Base	-	-	-	-	-	7 “	9 “
Tread	-	-	-	-	-	4 “	8 “
Diameter of Wheels	-	-	-	-	-	-	34 “
Tires (clincher)	-	-	-	-	-	-	34 x 4 “
Water Tank Capacity	-	-	-	-	-	-	17 Gals.
Gasoline Tank Capacity	-	-	-	-	-	-	15 “
Weight Empty	-	-	-	-	-	-	2,425 lbs.
Weight Filled	-	-	-	-	-	-	2,668 “

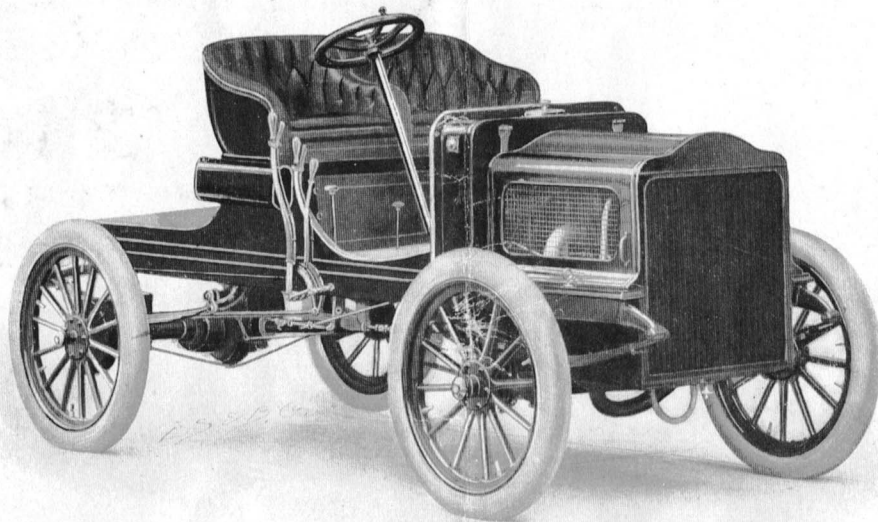
Price, \$3,200, F. O. B. Cleveland, complete with tires,
oil lamps, horn and tool kit.

The car will be equipped, without extra charge, with any American make of pneumatic tires that will fit the standard 34x4 clincher rim, provided the tire desired is specified 30 days before date of shipment of the car. Foreign tires that will fit the 34 x 4 clincher rims will be supplied on 30 days notice as above, and at the additional charge equal to the difference in the list price between the American and foreign tires. Where no specifications for tires are received the car will be equipped with any of the standard American clincher tires.

Limousine Car



1905 Car with Light Touring Body



Price, \$2,300 F. O. B. Cleveland.

Equipment With Each Car

2 Pair of Cushions
1 Pair Oil Lamps
1 Rear Oil Lamp
1 Horn
1 Center Seat
1 Tire Pump
1 Extra Vaporizer
1 Extra Sub-Burner
1 Tool Box containing the
 following:
1 Leather Case
1 Bicycle Wrench

1 Auto Wrench No. 8
1 Trim Wrench
1 File and Handle
1 Packing Fork
1 Stuffing Box Tightener
2 Drills
1 Dog
2 Tire Prodders
1 Hub Wrench
1 Pair Pliers
1 4-inch Screw Driver
1 6-inch Screw Driver

1 Box Hemlet Oil
1 Hemlet Oil Injector
1 Tire Repair Kit
1 Pair Toggle Covers
1 Canister
Cotter Pins
Screws for Water Regulator
 and Vaporizer
Screws for Sub-Burner
Pins
Packing
4 Washers for Air Check

Extra Equipment—2 Bullet Shaped Acetylene Headlights, with 6-inch mirror lens reflectors, brackets and independent gas generator complete, \$75.00.

WHITE MOTOR CARS



AWARDED

GRAND PRIZE

