

"We have driven in the new Car, and have no hesitation in saying that it is appreciably faster, both on the level and on the hills, than the very speedy 15 h.p. model. The merits of the 'White' Steam Cars are so well recognised in these days, even by the most convinced adherents of the petrol engine, that it is unnecessary to refer to them here. It is of interest to note, however, that the greatly-lengthened wheel-base of the 18 h.p. type, while increasing the steadiness of running, in no way detracts from the handiness of the car in traffic. The lock of the steering wheels is ample for every reasonable requirement, and in the course of a trial run, specially mapped out by us in order to test the Car at every point, the 'White,' with a load of five persons, easily negotiated on a steep up-gradient one of the most difficult 'hair-pin' corners in the country."



'WHITE' STEAM CARS.

Offices and Showrooms :

35, 36 & 37, KING ST.,
REGENT ST., LONDON, W.

Telegrams :
"YENISEAN, LONDON."

Telephones:
5429 GERRARD.
5449 GERRARD.

Cablegrams :
"YENWALT, LONDON."

HOME OFFICE . . .
WHITE SEWING MACHINE CO.,
CLEVELAND, OHIO, U.S.A. . . .

INTRODUCTION.

WITH the approach of each New Year we write our brief introduction to our Catalogue and Price List for the season to come with a prouder and more dominant note.

Five or six years ago there were several steam cars on the market. To-day there is but one whose makers have made a really successful business venture in connection with motor-car manufacture. Failures of the manufacturers of other motor vehicles who essayed to employ steam as a motive power, however, have had no deterrent effect upon the rapidly-increasing fortunes and upon the splendid evolution of a car which has always been recognised to be a really good and sound car, and which is now admitted on all sides by friends and rivals alike to be one of the best productions in the engineering, as well as in the motor-car world.

A few years ago we wrote words of praise about the 'White' Steam Car with a knowledge that many of the readers of the literature which we published would not only doubt the accuracy of our statements, but that some of them would even go so far as to laugh them to scorn. To-day we have the gratification of knowing that there are hundreds of satisfied owners of 'White' Steam Cars throughout Great Britain and the British Colonies who are as proud of the triumph of the 'White' system of steam generation as are the makers of the car themselves.

Some of the best known experts in the motor world, who for years clung tenaciously to the idea that steam, as applied to motor vehicles, was not capable of producing the results produced by internal combustion, have become strong adherents to and frank admirers of the incomparable 'White,' which they admit to be a motor car of the highest class, regardless of price or power.

Upon the introduction of the 18-h.p. 1906 'White' Steam Car into Great Britain the following paragraph appeared in the *Automotor Journal*:—

"Excellent in every way as is this year's 15-h.p., the manufacturers of the 'White' Steam Cars have again—true to tradition—succeeded in showing the motoring public that they—although practically alone and unassisted in the development of a distinct type of vehicle—can fully hold their own with steam vehicles in competition with the combined efforts of the numerous builders of petrol cars. Their new model has each year been a sure sign of the restless activity of this most progressive firm. Good as was even their first two-seated run-about—astonishingly good in comparison with motor cars of that day—yet each and every new type has been far better, and the latest is no exception to this now well-recognised rule."

Our this year's car is stronger in construction than any car which we have ever produced. Its long wheel base permits of a luxurious side entrance, twenty-four inches in actual width of door. The seating capacity is marvellously roomy, and a com-

FUEL.

ALTHOUGH the 'White' Steam Car will burn petrol or motor spirit of all grades of specific gravity up to 750, the fuel which is usually burned in the 'White' Steam Car is a grade of petrol known as benzoline or benzine, which costs from 7d. to 7½d. per gallon retail. As the 'White' runs from 13 to 15 miles per gallon of fuel, the cost of running the 'White' Steam Car works out at an average of about one half-penny per mile for fuel; and as it consumes about one-tenth of the lubricating oil used by the average petrol car, the whole cost of running comes well under a penny a mile.

WATER.

No care need be exercised in the selection of water as regards freedom from lime or chalk. The 'White' Car will run 150 miles without replenishing with water, and when water is required, any water can be utilised, hard or soft. The water need not even be strained if it is fairly free from mud, sticks, stones, gravel, or other foreign substances.

LUBRICATING OIL.

The lubricating oil which the manufacturers recommend for the cylinder lubrication of 'White' Cars is either the Vacuum Company's Hecla or Bowring's White Steam Cylinder Oil. Vacuum B Mobiloil may be used if no other is available. Vacuum C Mobiloil is recommended for the engine crank case, and differential gear casing.

OFFICIAL RESULT OF HANDICAP HILL-CLIMB OF THE HERTFORDSHIRE AUTOMOBILE CLUB,

At Aston Hill, September 10th, 1904.

- 1st. 10-H.P. 'WHITE' STEAM CAR.
- 2nd. 10-H.P. 'WHITE' STEAM CAR.
- 3rd. 10-H.P. 'WHITE' STEAM CAR.
- 4th. 10-H.P. 'WHITE' STEAM CAR.
- 5th. 24-H.P. Leon Bollee.
- 6th. "20"-H.P. Napier.
- 7th. 10-H.P. 'WHITE' STEAM CAR.
- 8th. 12-H.P. Wolseley.
- 9th. 16-20-H.P. Martini.

OFFICIAL RESULT OF THE EAGLE ROCK HILL-CLIMB HELD IN

New Jersey, U.S.A., November 24th, 1904.

	Min.	Sec.
90-H.P. Renault	- - - - - 1	20
90-H.P. Mercedes	- - - - - 1	20 $\frac{3}{5}$
90-H.P. Fiat	- - - - - 1	22
90-H.P. Fiat	- - - - - 1	22 $\frac{1}{5}$
15-H.P. 'WHITE' STEAM CAR	- 1	23 $\frac{3}{5}$
60-H.P. Fiat	- - - - - 1	24 $\frac{1}{5}$
75-H.P. Simplex	- - - - - 1	29 $\frac{3}{5}$
60-H.P. Mercedes	- - - - - 1	33 $\frac{3}{5}$
40-H.P. Mercedes	- - - - - 1	39 $\frac{3}{5}$

PRESS - NOTICES

"There is no steam car at the present time that is giving so much satisfaction in the hands of users."

The Car Illustrated.

"There is no automobile which is driven by steam which so fills the automobilist with leanings toward the steam car as the now well-known and keenly appreciated 'White' Steam Car."

The Autocar.

"The reliability of the 'White' Steam Car has been established beyond all question. It is only necessary to point to the performance of this car in the 1,000-Miles Reliability Trials, and the more recent American Endurance Test, to show that the 'White' is fully the equal of the best petrol cars in the matter of reliability."

Motoring Illustrated.

"A remarkable advance in steam practice."

The Bystander.

"One could not ride on the 'White' Steam Car for five minutes without being struck by the perfect ease of running of the vehicle; nothing can be compared to it except an electric car. The car was a most delightful one to travel on, steady and silent, regular in speed, and under complete control."—*Morning Post*, London.

"The qualities generally attributed to steam cars—silence, flexibility, and smoothness of running—reach a very high degree of excellence in the new machine, and at the end of an afternoon's run, uneventful except for the tackling of some exceptionally steep and trying gradients from a standing start, we found it impossible to find any point of the car's behaviour deserving of adverse criticism. Whether petrol, steam, or electricity is destined to provide the motive power for the automobile of the future, time alone can show; but so long as makers produce cars such as the 'White,' steam can fairly be said to be holding its own in the race for supremacy. On our recent trial run the water tank was nearly two-thirds full at the end of about 50 miles over exceptionally heavy roads."—*From Country Life.*

"It was the night before, or rather the morning, of the big International race, when hundreds of cars started out from Clermont Ferrand, and Royat, en route for the different controls. Most of the cars were heavily horse-powered, and at 2 a.m. in the morning quite a procession of big cars were climbing the approaches of the Puy-de-Dome. Our representative was seated in a 'White' Steam Car, driven by Mr. Frederic Coleman, and in the early morning climb we passed every car on the hill, and most of them were going all out. Our representative gives a list of the cars passed, many of which were double the horse-power of the 'White,' but not one of them could hold the 'Steamer' for one moment on the hill."—*Motor News.*

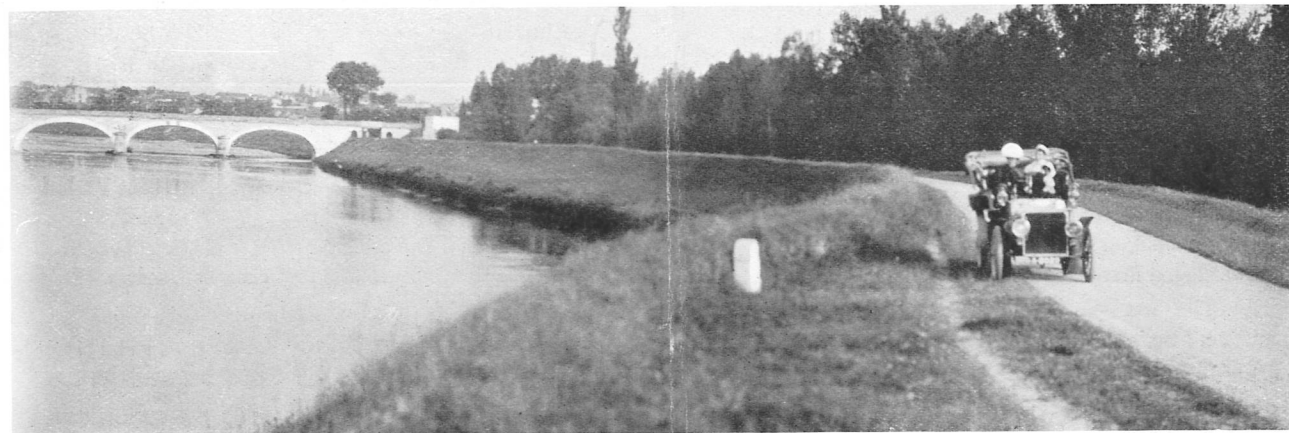
"A 'White' Steam Car will burn a cheap grade of petrol costing 7d. to 9d. a gallon, one gallon running fifteen to seventeen miles. Fuel consumption works out at 3d. per mile and, including lubricating oil, the car runs at less than a penny per mile. This is an American car with the American system of standardising parts, so that duplicates are readily obtained. The absence of vibration in steam cars saves wear on tyres and machinery. It is a simple car, not needing a chauffeur, stands hard wear, and with care, shows a low repair bill."

Daily Express, London.

plete alteration of burner system carries with it many advantages, the chief of which is that the power of the car is noticeably increased, so that not only for speed on the level but especially for climbing steep hills, the car now ranks with the cars of highest power. Longer wheel base and the larger tyres on the rear wheels still further improve the sweetness of running of the car, and it needs but to be tried to

the distribution of spare parts and backed up by one of the largest and most comprehensive store-rooms to be found in connection with any motor business in London, are points which the purchaser of a motor car can better appreciate after his experience as a motor owner.

The standard model of the 1906 18-h.p. 'White' touring car, fitted with double phaeton body, as



prove itself the most luxurious vehicle that the world has yet seen as regards ease of running and comfort to its occupants.

'White' silence and 'White' absence of vibration are the ideals toward which all other motor manufacturers are striving.

Our standardisation-of-parts system, combined with a most carefully organised department for

illustrated on another page of this catalogue sells for £600.

If you are in the market for a motor car which is to be of the very highest class in every particular, we ask you to look at this car at £600 and see for yourself what we have to offer you. Then search from one end of the motor market to the other and see what car under £800 to £1,000 in price can compare with the new model 'White' Steam Car.

RELIABILITY.

A CONSISTENT official record for reliability extending over five years is an asset of which few motor-car manufacturers can boast. Such a record, however, has been won by 'White' Cars, which have competed in every reliability contest held by the Automobile Club of Great Britain and Ireland, or by the Automobile Club of America since 1901 without once having failed to win a medal, or in instances where medals were not awarded, a first-class certificate.



The first victory of the 'White' Steam Car was upon the occasion of an endurance run from New York to Rochester, and conducted by the Automobile Club of America, and held from September 9th to September 13th, 1901. This was not long ago, as most of us measure time, but was in the days when the Automobile industry was in swaddling clothes. In this contest the 'White'



captured a lion's share of the honours by winning four first-class certificates.

Two more first-class certificates were awarded to 'White' Cars in April, 1902, when the Long Island Automobile Club held a 100-Mile Non-Stop Endurance Test. The 'White' Cars entered had no stops for either fuel or water for the 100 miles. In May of the same year the Automobile Club of America held a similar non-stop endurance contest, also for a distance of 100 miles. Three 'White' Cars were entered, and none of them had a single stop for fuel or water, all winning first-class certificates.



The year 1902 also saw two great reliability trials, one of which was held in England and one in America. The Automobile Club of Great Britain and Ireland held its well-remembered 650-Mile Trial in September, and the 'White' created a real sensation by gaining its first public victory in Great Britain. The 'White' was one of two cars to finish with the greatest number of reliability marks, and



THE SPEED of the 15-H.P. 'White' Touring Car was one of its chief features. At the Ormond Beach Races, in January, 1905, a 15-H.P. 'White' Touring Car won the mile race for standard cars in 51 4/5 seconds, a rate of more than 50 miles per hour, the advertised speed of the Car.

The 18 h.p. 'WHITE' is still faster.

From the "AUTOMOTOR JOURNAL,"
September 30th, 1905.

"As it is, however, even the most hardened advocate of, and adherent to, the petrol car is now compelled to have a good word for the 'White,' and even the driver who prides himself upon the speed of his 30-40 h.p. petrol vehicle knows that a 'White' can travel, too. This year's model gives luxury, speed, and is a first-rate hill-climber, but in each of these respects that which has now been brought out for 1906 is even superior. It is, in fact, unquestionably destined to popularise 'steamers' amongst those who make a point of buying the very best cars."



At Brighton, on July 21st, 1905, a race was won by a Standard 15 h.p. 'White' Steam Car, driven by its owner, an amateur, in which, although the Car carried a full load, and started from a standing start, the 'White' sped over the course at a rate of 37 1/2 miles per hour for the full mile.

At the Bexhill Speed Trials, on June 14th, 1905, the 'White' was most successful, although competing with cars of much greater declared horse-power, and almost double list price. In a kilometre race from standing start, with a stiff up-hill finish, the 15 h.p. 'White' made 34.50 miles per hour, which was better time than was made by one 24-30 h.p. car, two 24 h.p. cars, two 18-24 h.p. cars, one 18-22 h.p. car, one 13-17 h.p. car, and several others. In another race the 'White' won at a speed of 35 miles per hour, which was faster than the time made in the same race by one 40 h.p. car and two 24 h.p. cars.



AN OWNER'S LETTER TO AN INQUIRER

Who Wrote for an Unbiased Opinion on

'WHITE' STEAM CARS.

SCAR HOUSE, STAINLAND,

October 20th, 1905.

DEAR SIR,

In answer to your inquiry it is with great pleasure that I answer your queries: 1st, How long have you had your 'White' Steam Car? *Ans.*: I think I got it the latter part of February of this year. 2nd, Have you found the boiler and all its parts reliable? *Ans.*: Yes, no trouble of any kind for any reason whatever. 3rd, Has the engine and live axle, including gear, caused you any trouble? *Ans.*: Not had to touch them so far. 4th, Are brakes strong and proved reliable? *Ans.*: Yes, have found them so far effective on the steepest and longest hill, although, were I ordering now, I think I should prefer their wire rope brake to the side rods, which sway somewhat on a rough road. 5th, Would you, if purchasing, select another 'White' Steam Car? *Ans.*: Most emphatically, yes.

Two out of the four stuffing boxes have not been packed yet, and the high-pressure piston and valve spindles have only had a round or two of packing put in. I think the 'White' a beautiful car in every way, both for finish and good workmanship, and splendidly comfortable to travel in. I am only sorry people do not see more of them down here, as wherever I have taken mine it has

aroused general admiration, but there seems to be an undue prejudice against steam, which will be got over as people see more of them.

Perhaps you read Earl Russell's article in *The Autocar* (I think the paper was), giving his account of his trip of 1,250 miles on a 'White' Steam Car, without any trouble of any kind, except from a broken spring done by the steamship company in unloading. Now, I can go one better than that. I have been 1,600 miles over hill and dale; and some steep hills, too, viz., Woodhead Moor, near Huddersfield, 1,725 feet above sea level, without any trouble of any kind, and this has been done on solid tyres, too, which I had put on against the wishes of the makers, so it shows well for the construction of the car.

Any further information I shall be glad to give you. I come to Harrogate frequently.

Yours truly,

(Signed) BENJAMIN TAYLOR.



was consequently given a special award in the form of a medal for novelty and excellence. Still more spectacular was the performance of the 'White' Cars in the reliability contest of the Automobile



Club of America, in October, 1902. This consisted of a run from New York to Boston and return, and four 'White' Cars acquitted themselves so well as to be awarded four gold medals and four first-class certificates.

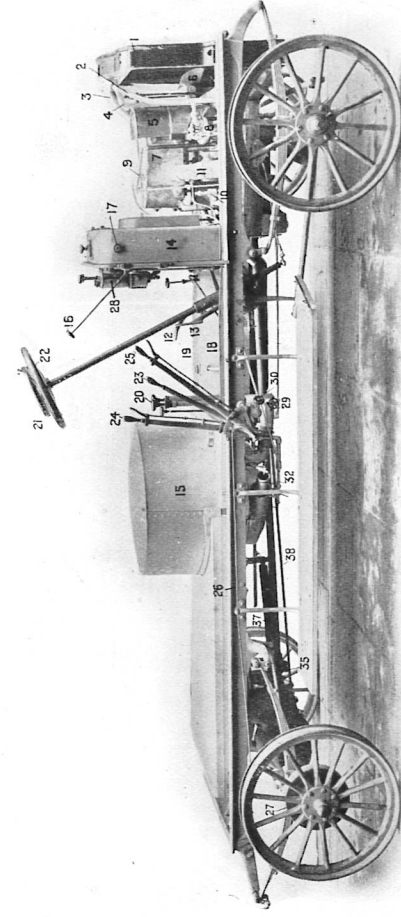
The Automobile Club of Great Britain and Ireland held its 1,000-Mile Reliability Trial in September, 1903, the 'White' winning a special silver medal for low water consumption. Two 'Whites' were entered in this contest and both of them made splendid records for reliability. One had no stops during the entire trials, except for tyre troubles, and the other had one one-minute stop only, with the

exception of a three-minutes' stop for replenishing, and sundry stops for punctures.

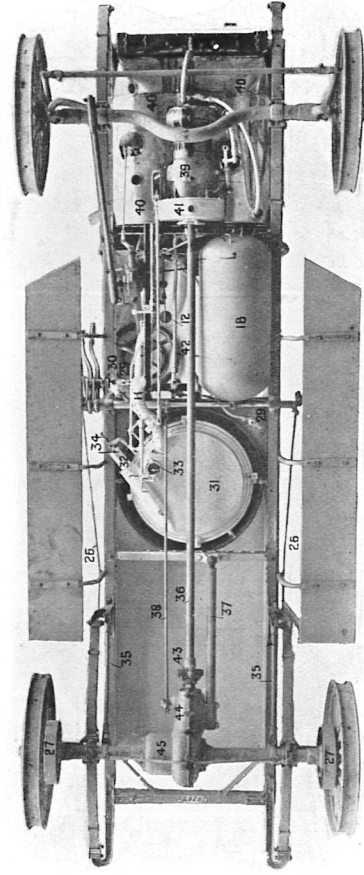
The month following, in October, 1903, a great reliability run was held from New York to Pittsburg, under the auspices of the National Association of Automobile Manufacturers of America. In this the 'White' Cars won two gold medals out of a total of eight medals awarded.

In the Reliability Contest, conducted by the Nederlandsche Automobielen Club in Holland, from May 29th to 31st, 1905, covering 525 miles, one 'White' Car made an absolutely perfect performance and scored the maximum of 900 points. Another 'White' Car scored 899 points, and the only other 'White' entered scored 898 points. Not one of the three Cars lost a mark for mechanical troubles. Surely the 'White' has officially proven its reliability.

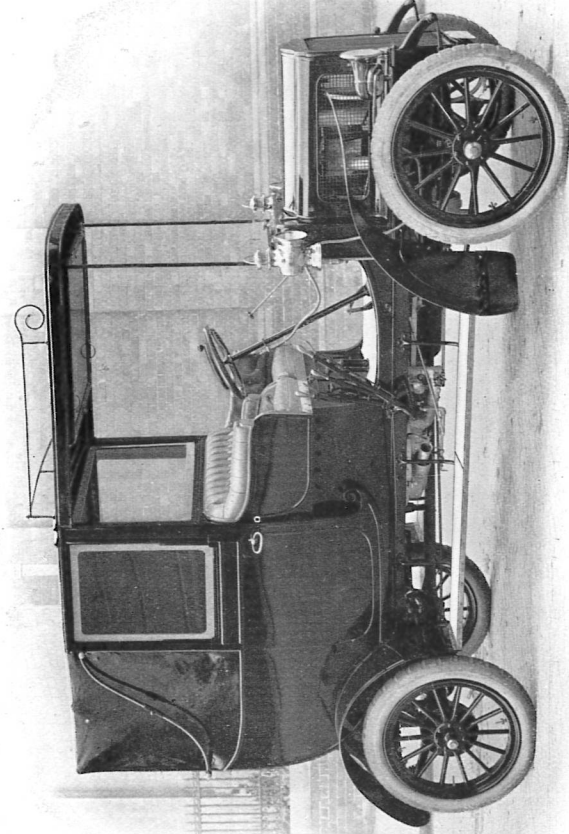




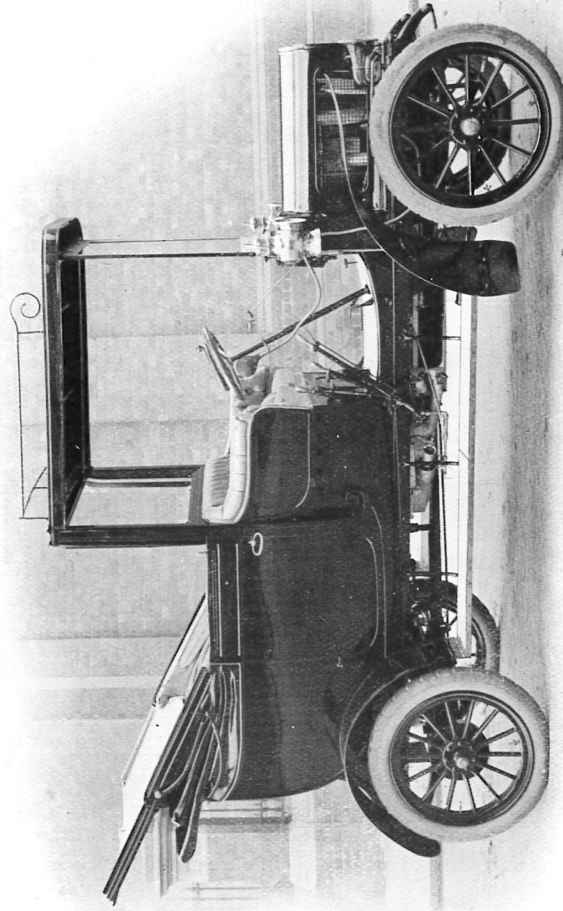
18 H.P. 'WHITE' CHASSIS (SIDE VIEW).



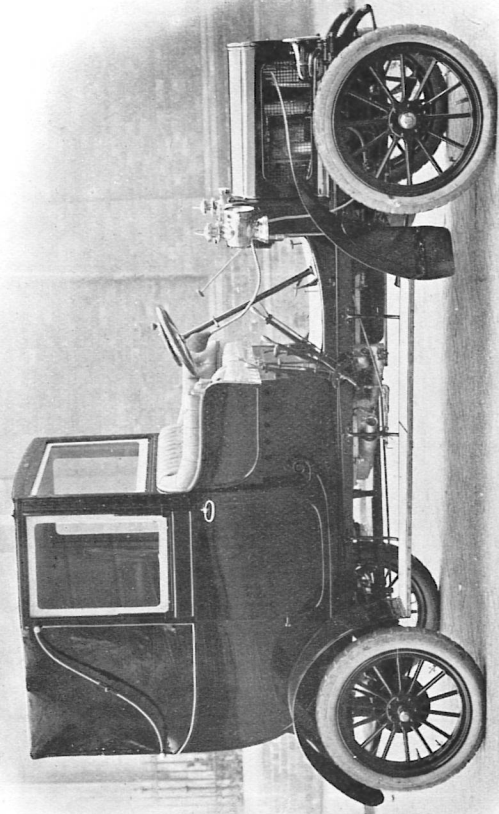
18 H.P. 'WHITE' CHASSIS (BOTTOM VIEW).



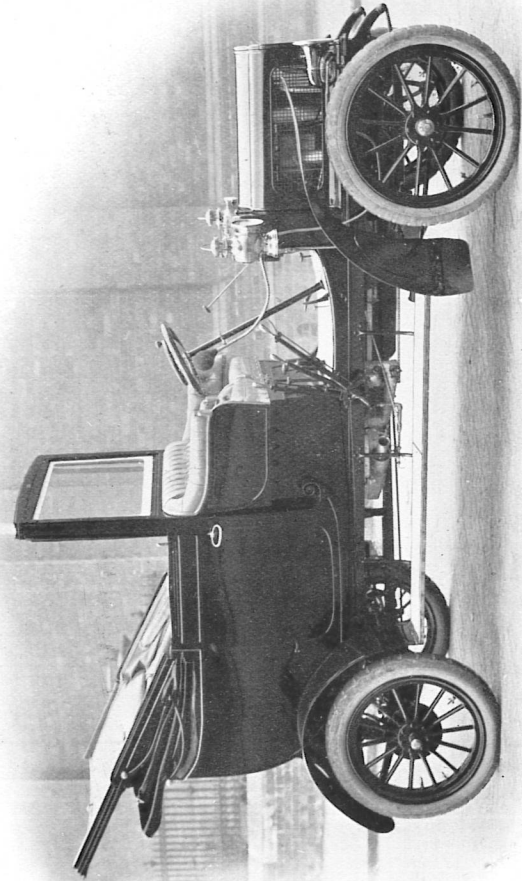
LANDAULETTE WITH £12 10 0 CANOPY AND FRONT GLASS.



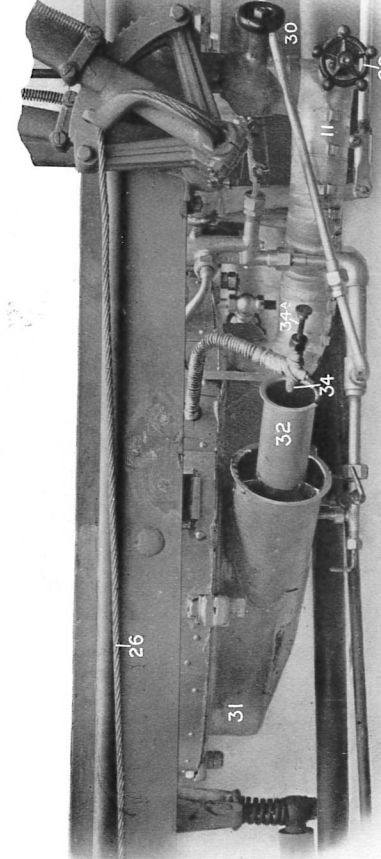
CANOPIED LANDAULETTE WITH HOOD DOWN.



18 H.P. 'WHITE' LANDAULETTE, \$700.



LANDAULETTE WITH HOOD DOWN.

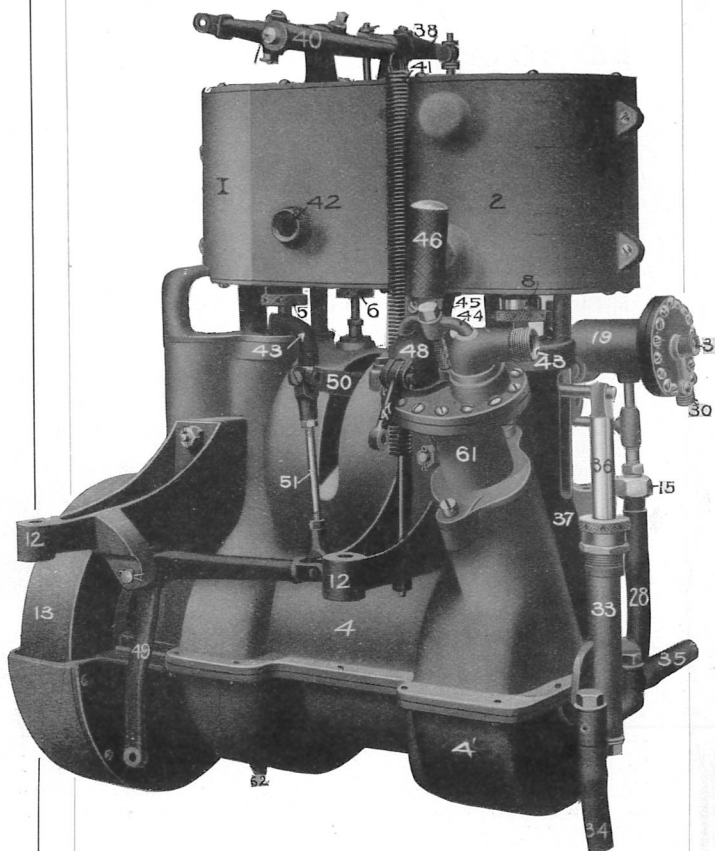


ENLARGED VIEW OF 18 H.P. 'WHITE' BURNER SYSTEM.

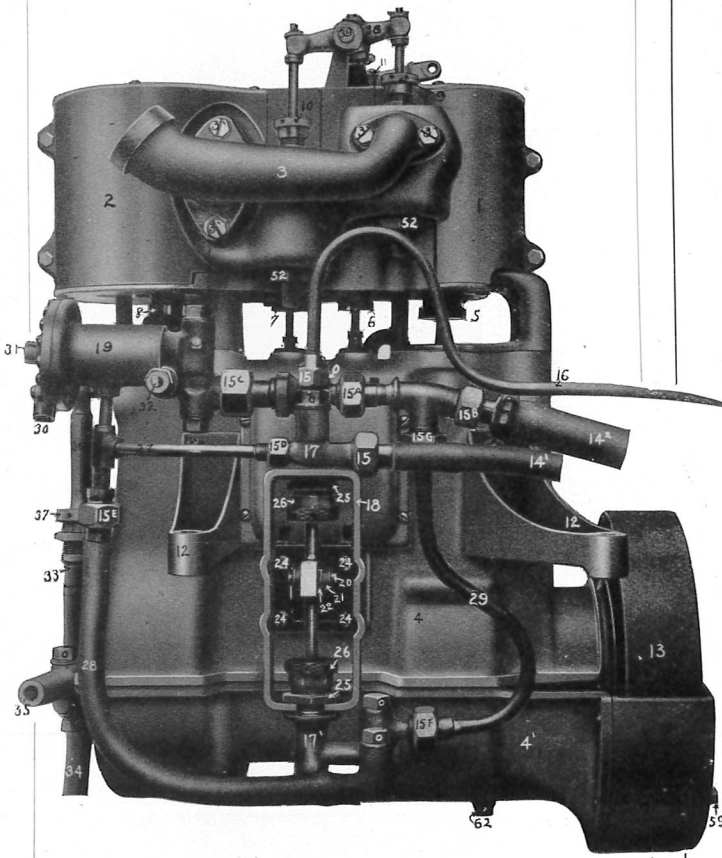
KEY TO CHASSIS ILLUSTRATIONS, 18 H.P. 'WHITE' CAR.

THE THREE VIEWS ARE NUMBERED SIMILARLY.

- | | |
|--------------------------------|---|
| 1. Condenser. | 25. Brake Lever. |
| 2. Overflow Pipe. | 26. Brake Cables. |
| 3. Exhaust Pipe. | 27. Brake Drums. |
| 4. Fan Bracket. | 28. Automatic Cylinder and Crank Case Lubricator. |
| 5. Aluminium Shield. | 29. Blow-off Cock. |
| 6. Fan. | 30. Main Burner Valve. |
| 7. Engine, | 31. Main Burner. |
| 8. Power Air Pump. | 32. Mixing Tube. |
| 9. Simpling Valve. | 33. Sub-burner or Pilot Light. |
| 10. Safety Valve. | 34. Vaporizer Nozzle. |
| 11. Main Steam Pipe. | 34A. Vaporizer Cleaning Pin. |
| 12. Simpling Pedal. | 35. Reach Rods. |
| 13. Foot Brake Pedal. | 36. Driving Shaft. |
| 14. Water Tank. | 37. Axle Stay. |
| 15. Generator. | 38. Emergency Lever Rod. |
| 16. Hand Water Bye-pass. | 39. Engine Crank Case. |
| 17. Water Tank Cleaning Plugs. | 40. Aluminium Engine Cover. |
| 18. Fuel Tank. | 41. Foot Brake Casings. |
| 19. Fuel Tank Cap. | 42. Main Water Pipe. |
| 20. Hand Air Pump. | 43. Universal Joint. |
| 21. Throttle Wheel. | 44. Emergency Gear Casing. |
| 22. Steering Wheel. | 45. Differential Gear Casing. |
| 23. Emergency Lever. | |
| 24. Reverse Lever. | |



RIGHT SIDE OF 'WHITE' ENGINE.



LEFT SIDE OF 'WHITE' ENGINE.

PRICES.—NET CASH.

TERMS.—One-third of Purchase Price with Order, balance on delivery from the London Showrooms of 'White' Steam Cars.

Standard 18-H.P. 'White' Chassis - - -	£550
Standard 18-H.P. 'White' Touring Car - - -	£600
Standard 18-H.P. 'White' Limousine Car - - -	£675
Standard 18-H.P. 'White' Landulette - - -	£700

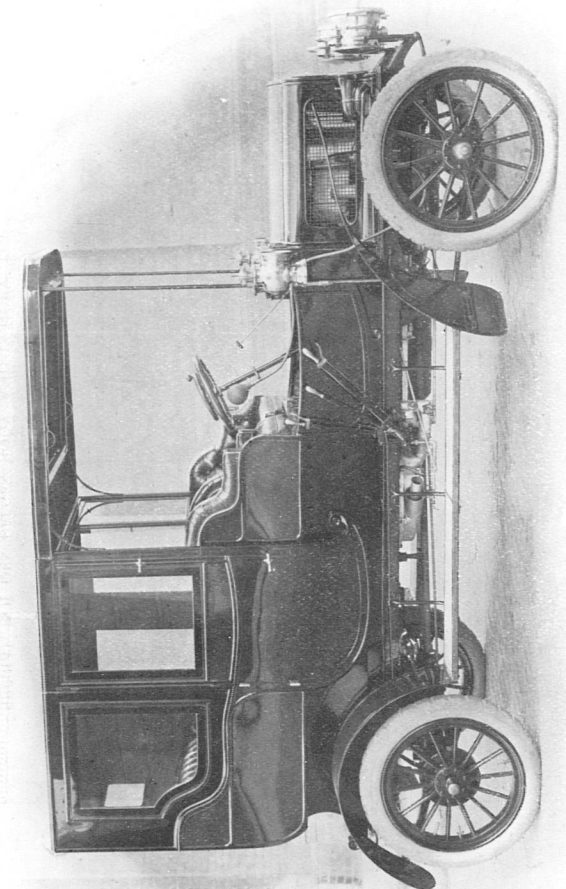
Each price includes the best British Paraffin Lamps (two in front and one behind); large Horn and flexible tube; Dunlop Non-slipping or Continental Tyres; a complete set of Tools; and a Tyre Repair Outfit and Pump. Any Tyres supplied at special prices.

Canopy Tops, Cape Hoods, and various special types of Body, as well as Side Baskets, Wind Doors, Acetylene Gas Lamps, and all other Motor Accessories, can always be supplied at special prices.

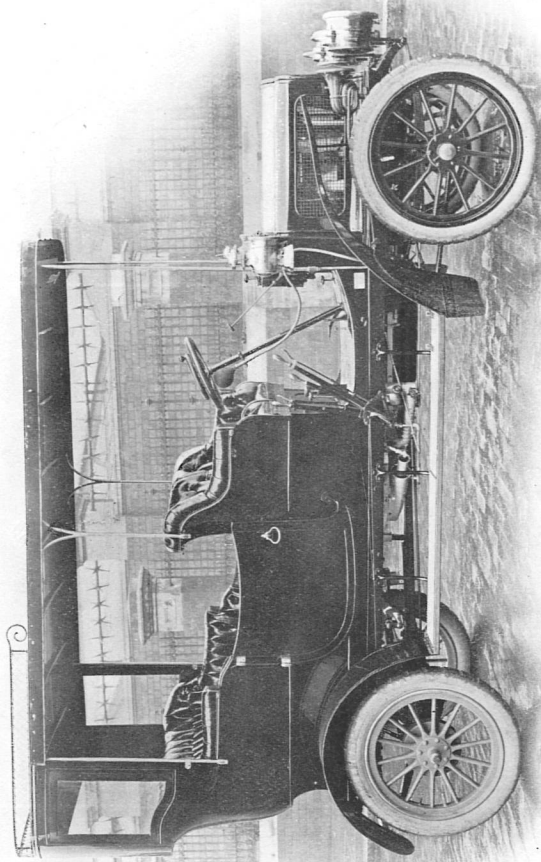
A driver or instructor is supplied to each customer in Great Britain for one week, free of charge, except the man's living and travelling expenses during that period, and we are perfectly willing to give any man whom any customer may send to us a course of instruction in our workshops, extending over such time as a customer may desire. In short, we adopt every means in our power to make any customer, or the man whom he may appoint to drive and care for his car, thoroughly familiar in every way with all the features of the 'White' Steam Car.

Every customer of a 'White' Steam Car is supplied free of charge with an elaborate and detailed Instruction Book, compiled specially for customers.

Fuel and Lubricating Oil is supplied to customers at reasonable prices.



18 H.P. LIMOUSINE WITH DETACHABLE BROUGHAM TOP. £675.



SPECIAL ROYAL BELGES BODY AND CANOPY TOP

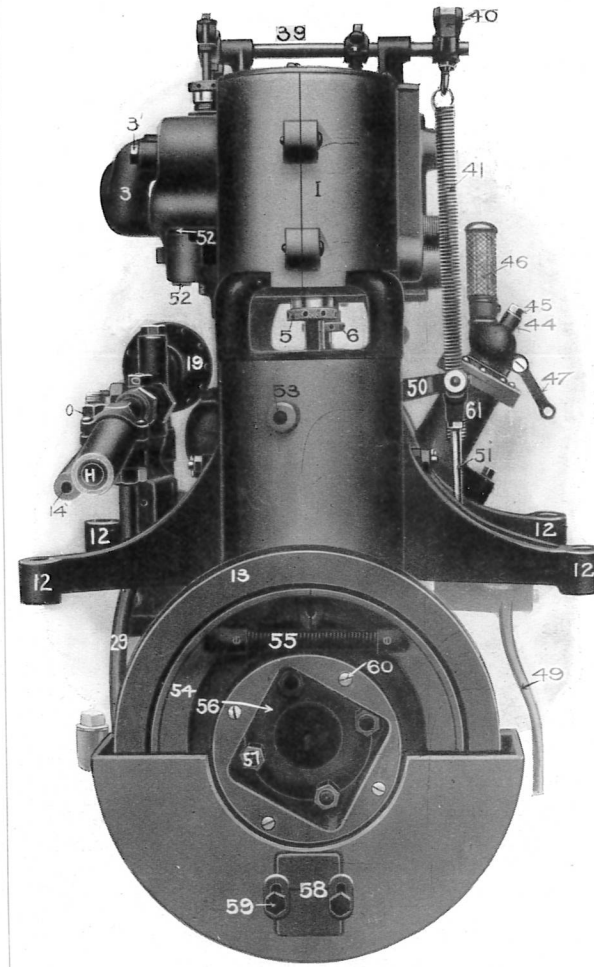
SPECIFICATION OF THE 18-H.P. 'WHITE' STEAM TOURING CAR.

Seating Capacity	Five Persons.
Rated Horse-power	Eighteen.
Engine	Compound.
Wheel Base	9 feet 6 inches.
Tread	4 feet 8 inches.
Wheels	34 inches.
Weight Empty	2,240 lbs.
Extreme Length over all	13 feet.
Extreme Width over all	5 feet 3 inches.
Extreme Height over all	5 feet 6 inches.
Capacity of Fuel Tank	12 gallons.
Capacity of Water Tank	12 gallons.
Tyres, Front Wheels	870m. x 100m.
Tyres, Rear Wheels	880m. x 120m.

150 mi'es on one filling of Fuel. 150 miles on one filling of Water. Condenser. Automatic Cylinder and Engine Lubricator. Two independent sets of Double-acting Brakes. A'uminium Body, best Leno'on make. Mudguards.

As 'White' Steam Cars are standardised and every nut, bolt and screw in one car is identical with each part in all 'White' Cars of similar power, spares can be procured in a minimum of time, and at a minimum of cost.

Prospective customers are invited to inspect our extensive Storerooms at 35, 36 and 37, King Street, Regent Street, London, W.



BACK VIEW OF 'WHITE' ENGINE.

KEY TO ENGINE ILLUSTRATIONS, 18-H.P. 'WHITE' CAR.

THE THREE VIEWS ARE NUMBERED SIMILARLY.

- | | |
|----------------------------------|------------------------------|
| 1. High-pressure Cylinder. | 20 to 20. Parts of Power |
| 2. Low-pressure Cylinder. | Water Pump. |
| 3. Exhaust Pipe. | 30 to 32. Water Regulator |
| 4. Aluminium Crank Case. | Parts. |
| 5. High-pressure Piston | 33 to 37. Return Pump Con- |
| Rod Gland. | denser to Water Tank |
| 6. High-pressure Slide | Connections. |
| Valve Rod Gland. | 38 to 41. Rocking Lever for |
| 7. Low-pressure Slide Valve | Simpling Valves. |
| Rod Gland. | 42. Main Steam Connection. |
| 8. Low-pressure Piston Rod | 43. Crosshead Guides. |
| Gland. | 44 to 48. Power Air Pump |
| 9, 10 and 11. Simpling Valves. | Parts. |
| 12. Supports. | 49, 50, and 51. Link Motion. |
| 13. Fly-wheel. | 52. Simpling Valve Plugs. |
| 14. Suction Hose. | 53. Adjusting Aperture. |
| 14 ² . Delivery Hose. | 54 and 55. Foot Brake. |
| 15. Water Pipe Connections. | 56 to 60. Driving Shaft Con- |
| 16. Pipe to Hand Bye-pass. | nections. |
| 17 and 18. Pump Casting. | 61. Power Air Pump. |
| 19. Water Regulator. | 62. Drain Plug. |

THE 'WHITE' ENGINE.

THE Engine used in the 18-H.P. 'White' Car is a Two-cylinder Compound Engine of the marine type, fitted with D slide valves and Stevenson link motion. The high-pressure cylinder is three inches in diameter and the low-pressure cylinder five inches. The stroke is three-and-one-half inches.

The Engine does not differ in principle from the recognized and generally accepted type of compound steam engine. This fact is of great advantage when a motorist is a novice, or when he is far from the assistance of an expert motor mechanic, for it is indeed hard to find a part of the world where a mechanic who understands steam engines cannot be found.

One of the foremost points of merit about the 'White' Engine is its careful construction as regards detail. It is so perfectly made that each and every part of it, down to the tiniest nut, bolt, or screw, is interchangeable. Twenty 'White' Engines could be taken to pieces and one engine made out of parts from each engine of the score.

The ball-bearing crank, which allows the engine to run so smoothly and quietly, has been greatly enlarged and strengthened in the 18-H.P. Engine, and great durability gained over earlier models.

Increased accessibility has also been secured.

The engine is 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.

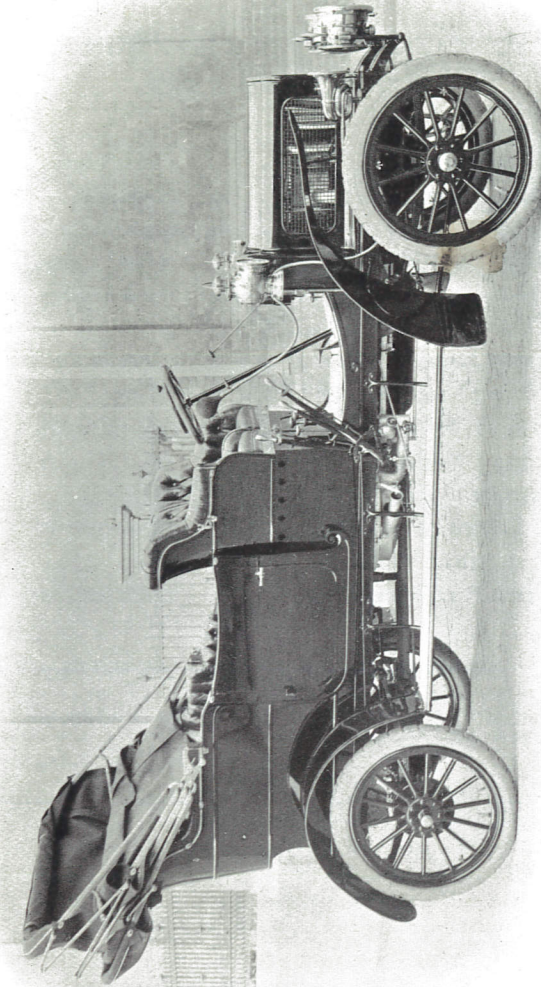
The cylinders are insulated and covered with an aluminium jacket. The crank case is of aluminium and thoroughly enclosed. Thus it gains the advantage of splash lubrication and makes the engine impervious to dust and dirt, and at the same time allows easy access to the parts.

The valves being governed by link motion, the engine may be readily reversed, and runs as rapidly when reversed as when going forward.

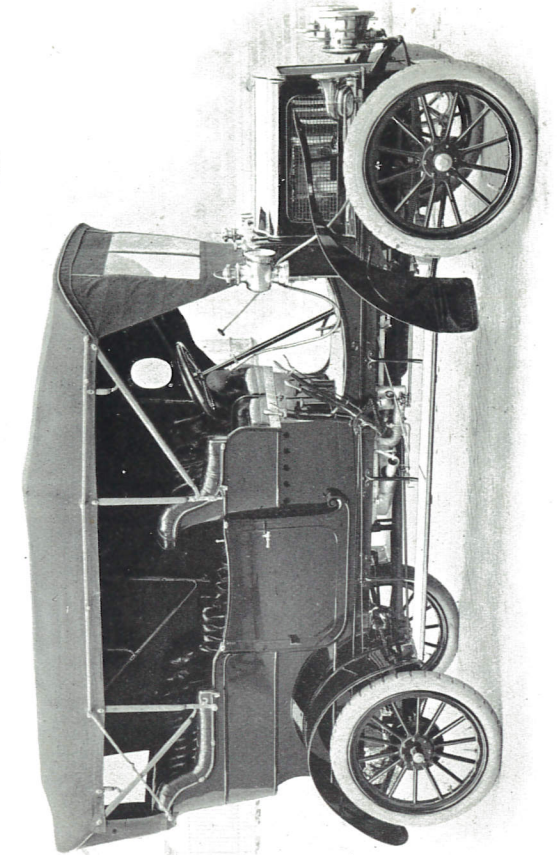
The engine is so well balanced in all its parts as to be perfectly free from all motor vibrations, and the exhaust steam is muffled so as to be absolutely noiseless. Hence the 'White' Steam Car is really noiseless and vibrationless, a combination of virtues frequently claimed, but rarely encountered.

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.

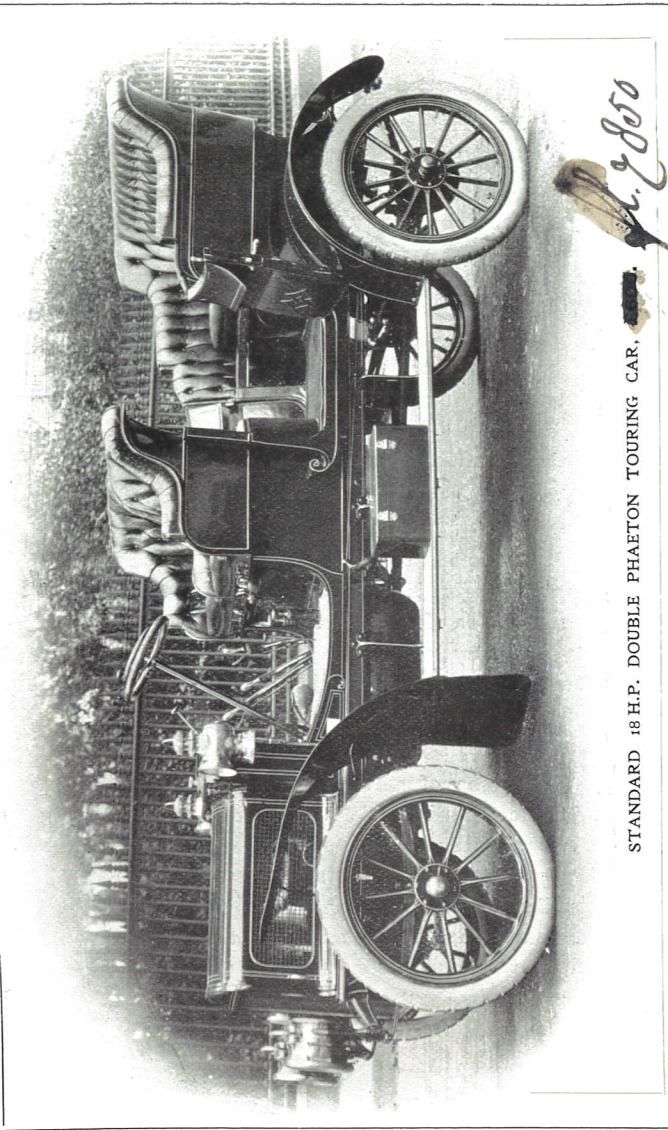
The rear axle is encased and the driving and compensating gears all run in oil.



CAPE HOOD THROWN BACK.

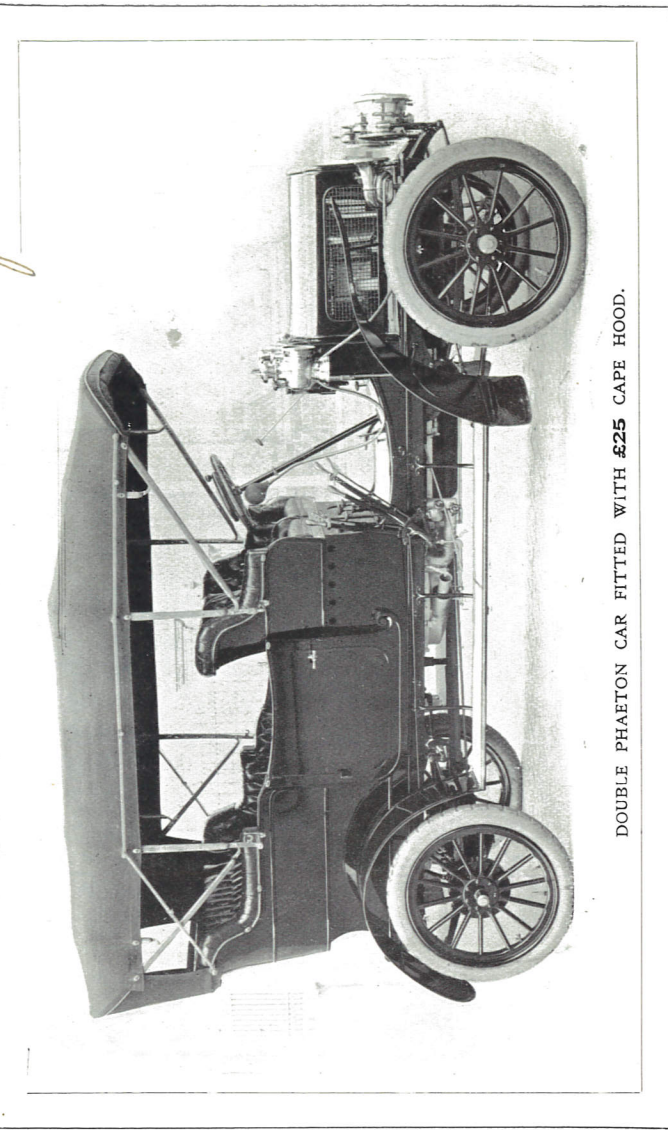


CAPE HOOD, SHOWING SIDE CURTAIN AND TAIL FRONT.

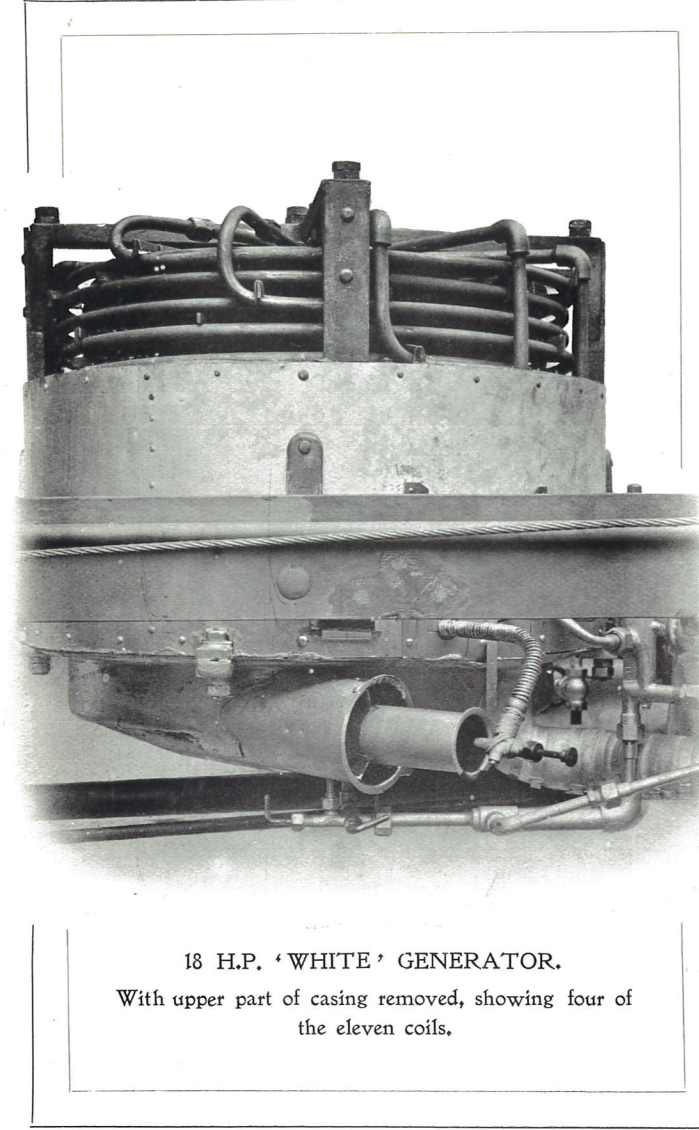


W. 2850

STANDARD 18 H.P. DOUBLE PHAETON TOURING CAR.



DOUBLE PHAETON CAR FITTED WITH \$25 CAPE HOOD.



18 H.P. 'WHITE' GENERATOR.
With upper part of casing removed, showing four of the eleven coils.

THE 'WHITE' GENERATOR.

THE 'WHITE' Steam Car is equipped with a steam generator which is not a boiler, and has none of the disadvantages which are peculiar to the latter. This generator consists of helical coils of seamless tubing, placed one above the other, and surrounded by a casing of insulating material, and at the bottom the heat is applied by means of a burner. The coils of tubing are so connected that the water, entering at the top, cannot pass through the successive coils below by gravity, but is held in place entirely subject to the action of the pump. In this way we have a steam generator in which none of the conditions of a steam boiler exist. The water comes in and is at all times in the top of the coils, while the steam is in the lower coils and goes out of the lowest coil next to the fire. There is no boiling water to generate steam. The upper coils act practically as water heaters, and the water is converted instantly into steam at some variable point in the lower coils, depending upon the amount of steam which the engine is using. There is no water level to maintain, consequently no water-glass. It is absolutely non-explosible, impossible to burn out, and all this without fusible plugs or other mechanical contrivances. The formation of any deposits or incrustation in the generator is rendered impossible by the rapidity of the circulation. Hence the generator is "unscalable," and never requires cleaning. The water supply is automatically controlled by the steam pressure. The steam, as it comes from the lower coil is super-heated, ensuring perfectly dry steam, which gives the greatest efficiency. A special device of our own regulates the flame in such a manner as to furnish sufficient steam to meet all requirements. We wish to emphasize the fact that the above takes place automatically, without entailing any care or thought on the part of the operator. The car can be run until the water supply is entirely exhausted, and only comes to a stop by reason of lack of water in the generating coils, without the slightest danger of explosion or damage to the coils. The operator will only have to obtain a new supply of water before he can proceed as usual.

WHY AND HOW THE 'WHITE' IS IN A CLASS BY ITSELF.

TO state it in a word, the keystone of the 'White' system, to which its successes are primarily due, is the elimination of the boiler and its worrisome accompaniment, the water level. In place of a boiler, we use a generator consisting of a series of coils of seamless steel tubing through which the water is pumped by the engine, issuing from the last coil as super-heated steam. The water is pumped into the top coil, and "flashes" into steam at some point about half-way down, this point varying with the conditions of running. In the lower coils it receives a high degree of super-heat, which avoids the waste of energy incident to cylinder condensation and contributes largely to the economy of the system. By means of automatic apparatus, which will be explained in detail later, the water is forced into these coils just in proportion as needed, slowly or rapidly, according to the conditions of running.

From this method of generating steam several important advantages result. In the first place, as already mentioned, no such thing as a boiler explosion is possible. It is well known that the destructive results of a boiler explosion are due, not simply to

the escape of the steam which was present in the boiler at the moment of bursting, but to the fact that the rupture releases the entire contained body of water, a large portion of which, if the pressure be at all high, passes spontaneously into steam of 1600 times the volume of the original water.

In the 'White' generator the entire amount of water in the coils is very small, only a few cup'uls at most. Even if the amount were much larger it could never be instantaneously released, since there is no possibility of a rupture like the tearing of a boiler seam. If such a thing as a failure should occur it would amount only to the splitting of one of the tubes, whereby the steam and water would be allowed to escape gradually. An important point in this connection is that the lower portion of the generator, instead of being, like the ordinary boiler, dependent for its integrity on being kept cool by the water within, is designed to resist its normal working temperatures without being touched by water, and consequently will not suffer if the tubes go dry.

Our method of regulating the fire is radically different from that of the ordinary steam carriage, and in every way superior. In the 'White' generator the pressure of the steam is immaterial, since the tubes will stand a pressure very far in excess of any ever reached in working. Consequently the fire is governed, not by the pressure, but by the temperature of the steam, through the aid of a thermostat. This is adjusted to shut off the fire at a certain temperature, at which temperature the steam has

received about 150° of superheat. A change in temperature of 15° is sufficient to open or close the burner valve; and if by any chance the coils should go dry, the practical effect would be simply to shut off the fire, and the car would come to a stop of its own accord, without the slightest injury to anything. For this reason it may be said that the 'White' generator is not only absolutely free from the possibility of explosion, but the only truly fool-proof apparatus of its kind on the market. It would be difficult to injure it even by deliberate neglect.

In the 'White' generator there is no such thing as a water level, and consequently no need for a float. Instead, we control the water supply by the steam pressure, and in an entirely automatic manner. With the fire controlled by the temperature of the steam, the effect of an increase in the amount of water in the coils is, first, to reduce the temperature, after which the thermostat immediately quickens the fire. From this the steam pressure rapidly rises, and the bye-pass valve on which the diaphragm regulator acts is opened. As the water in the coils is evaporated and the steam drawn off by the engine, the pressure begins to fall and the bye-pass valve is closed. Water then enters the coils again and the above process is repeated.

In practical operation, these functions of water feed and burner regulation take care of themselves without requiring the slightest attention. The normal working pressure is from 300 to 350 pounds, and the water ceases to pump to the coils at about 375 pounds.

It will be noted that with the above system of regulation there is no fixed relation between the temperature and the pressure of the steam. This is a point which some purchasers find confusing at first, in view of the well-known law governing the pressure and temperature of a fixed weight of gas. The reason that this law does not apply in the 'White' generator will readily be seen from the fact that we are dealing, not with a fixed weight of gas or superheated steam, but with a weight which is constantly varying from moment to moment, as water is pumped into the coils or steam drawn off by the engine. Consequently, though the pressure may vary, the advantages of an even degree of superheat are realized.

With superheated steam of high pressure, a compound engine is the logical concomitant. From the conjunction of these three elements the remarkable economy of fuel and steam which the 'White' car has shown will be understood. It is not even approximated by any other steam carriage.

By reason of this economy we are able to make the very desirable addition of a condenser. In this way the noisy and unsightly outside exhaust is suppressed, and the machine will make a 150-mile run without stopping to fill the tanks. The convenience of this feature is far from being its least recommendation, as every tourist will be ready to testify.