
THE ~ ~ ~
INCOMPARABLE
WHITE
STEAM
CAR ~ ~

LONDON



1909-10

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WHITE
STEAM
CAR ~ ~

LONDON

SPECIFICATION OF THE "FIFTEEN"
'WHITE' TOURING CAR.

H.-P. Cylinder	- - - -	2½ inches.
L.-P. Cylinder	- - - -	4¼ inches.
Stroke	- - - -	3 inches.
Seating Capacity	- - - -	Five persons.
Rated horse-power	- - - -	"Fifteen."
Engine	- - - -	Compound.
Wheel Base	- - - -	110 inches.
Tread	- - - -	4 feet 8 inches.
Wheels	- - - -	32 inches.
Extreme length over all	- - - -	12 feet 6 inches.
Extreme width over all	- - - -	5 feet 6 inches.
Extreme height over all	- - - -	5 feet.
Capacity of Fuel Tank	- - - -	14 gallons.
Capacity of Water Tank	- - - -	12 gallons.
Front Springs	- - - -	36 inches.
Rear Springs	- - - -	44 inches.
Hand Brake.	Powerful contracting Brake, acting on drums on rear wheels.	
Foot Brake.	Powerful expanding Brake, acting within drums on rear wheels.	
Minimum Clearance	- - - -	10 inches.

FUEL.

The 1910 models of the 'White' Steam Car will burn paraffin (kerosene), benzine or petrol (gasoline) as fuel without any change being made in the burner proper. To change the car from a paraffin burning car to a petrol burning car or *vice versa* only requires adjustment of the vaporiser and the shutter controlling the amount of air admitted to the burner.

WATER.

No care need be exercised in the selection of water as regards freedom from lime or chalk. The 'White' Steam Car will run 150 to 200 miles without replenishing with water, and, when water is required, any water can be utilized, 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 best lubricating oil for use in 'White' Steam Cars is 'White' Cylinder Oil for the engine cylinders and 'White' Crank Case Oil for the engine crank case and differential gear casing. These oils are economical and produce the best results. We sell them in one gallon tins, five gallon drums, or by the barrel.

SPECIFICATION OF THE 40-H.P. 'WHITE'
TOURING CAR.

H.-P. Cylinder	- - - -	3 inches.
L.-P. Cylinder	- - - -	5 inches.
Stroke	- - - -	4½ inches.
Seating Capacity	- - - -	Five to Seven persons.
Rated horse-power	- - - -	"Forty."
Engine	- - - -	Compound.
Wheel Base	- - - -	122 inches.
Tread	- - - -	4 feet 8 inches.
Wheels	- - - -	36 inches.
Extreme length over all	- - - -	14 feet 6 inches.
Extreme width over all	- - - -	5 feet 6 inches.
Extreme height over all	- - - -	5 feet 6 inches.
Capacity of Fuel Tank	- - - -	18 gallons.
Capacity of Water Tank	- - - -	14 gallons.
Front Springs	- - - -	44 inches.
Rear Springs	- - - -	56 inches.
Hand Brake.	Powerful contracting Brake, acting on drums on rear wheels.	
Foot Brake.	Powerful expanding Brake, acting within drums on rear wheels.	
Minimum Clearance	- - - -	10 inches.

Catalogue and Price List

— for 1909-1910 of —

The White Company

Manufacturers of

'WHITE' STEAM CARS

London Administration Department, Show Rooms
Store Rooms, Repair and Body Building Works

Carlow Street, Camden Town, London, N.W.

(A few yards from the Mornington Crescent Station of the Hampstead-Charing Cross Tube).

Telephone: 2626 North (3 lines) Telegrams: "Yenisean, London" Cable Address: "Yenwalt, London"

West-End Show Rooms

35, 36 and 37, Kingly Street, Regent Street, London, W.

Telephone: 7925 Gerrard

Home Office

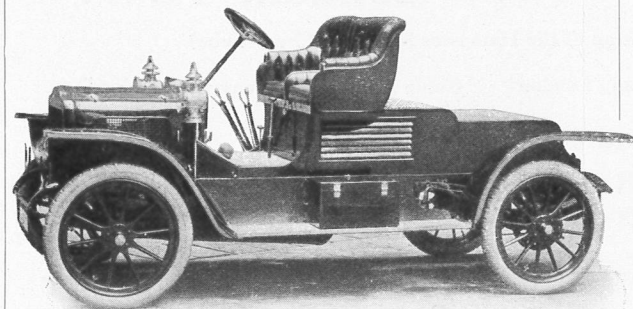
The White Company, Cleveland, Ohio,
U.S.A.

Manchester Branch

The White Company, Albion Street, Gaythorn,
Manchester



IN the season of 1909-1910 The White Company's output will be much greater than it has been in the history of the company. During the year 1909 The White Company, manufacturers of the 'White' Steam Car, manufactured a large number of motor cars of two models—the "Fifteen" and the 40-h.p. For the 1909-1910 season two steam models will be produced with but comparatively small changes between the 1909 and 1910 models. Not only will The White Company manufacture more steam cars for the season of 1909-1910 by a considerable number than they have heretofore manufactured in any one season, but, in addition to these two steam models, The White Company will produce an internal combustion car as well. The production of this car in no wise affects the steam car part of The White Company's business, except that the same organisation for the manufacture, sale, and repair of 'White'



"FIFTEEN" RUNABOUT.

Cars will handle all the different products of The White Company.

This catalogue is issued by the London Branch House of The White Company and is descriptive of and deals with the steam car part of The White Company's manufacturing business.

No model of 'White' Car since the first of The White Company's steam products in 1901 has shown so much comparative and contemporaneous excellence as the 1909 'White' Car. As an introduction to this catalogue, and in substantiation of this statement may be quoted a few of the opinions of the British lay and motor Press. It will be interesting to any prospective purchaser of a 1910 'White' Car to read these opinions of the 1909 'White' steam models, as they afford the enquirer after information as to The White Company's steam car products a good opportunity of obtaining *ex parte* opinions of the goods which The White Company have to offer to the motor purchasing public.

One of the great points which has always been claimed for the 'White' Car has been its marvellous flexibility. In point of flexibility no internal combustion engine can compete with it successfully. The following quotation from the *Autocar* as to the controllability of the car in traffic, and its flexibility, as compared with six-cylinder petrol cars, is particularly interesting on this point. The excerpt which we have taken from the *Autocar* also deals with the maintenance of speed on long gradients, the excellence of the brakes, and a plain statement of the power developed by the "Fifteen" 1909 model 'White' Car in climbing such a well-known hill as the hill of South Harting in Sussex. South Harting

PRICES.—NETT CASH.

15-H.P. 'WHITE' Chassis - - -	£385
15-H.P. 'WHITE' Chassis, fitted with Standard Double-Phaeton Body, London made - - - - -	£425
15-H.P. 'WHITE' Chassis, fitted with Standard Limousine Body (Detachable or Fixed Top), London made - - -	£525
15-H.P. 'WHITE' Chassis, fitted with Standard "Gold Medal" Landaulette Body, London made - - - - -	£525
40-H.P. 'WHITE' Chassis - - -	£700
40-H.P. 'WHITE' Chassis, fitted with Standard Double-Phaeton Body, London made - - - - -	£800
40-H.P. 'WHITE' Chassis, fitted with Standard Limousine Body (Detachable or Fixed Top), London made - - -	£900
40-H.P. 'WHITE' Chassis, fitted with Standard "Gold Medal" Landaulette Body, London made - - - - -	£900

TERMS.—One-third of Purchase Price with Order, balance on Delivery from the London Branch Office of The White Company.

THREE YEARS' GUARANTEE.

IN the event of any bad material or bad workmanship being disclosed in any part of a 'White' chassis purchased new from our London house or any of our branch houses or authorised agents in Great Britain and Ireland, and being the property of and in the possession of the original purchaser, we undertake on return of the part to our works in London within three years after delivery of the Car to examine it, and should any fault be found on such examination by us, proved to our satisfaction to be due to defective material or workmanship, we will supply a new one in place thereof free of charge. Our Cars are sold subject only to the express warranty set forth above, which shall exclude all warranties, conditions and liabilities whatsoever which might exist but for this provision.

EQUIPMENT.

EACH price includes oil side lights, oil tail light, large double-turn horn with flexible tube, number plates, tyres, tyre repair outfit, tyre pump, set of tools, spare pilot light, spare vaporizer, jack, tin of lubricating oil, and tin of grease. Brackets and fitting of acetylene lights will be provided free of charge if the lamps are purchased from The 'White' Company.

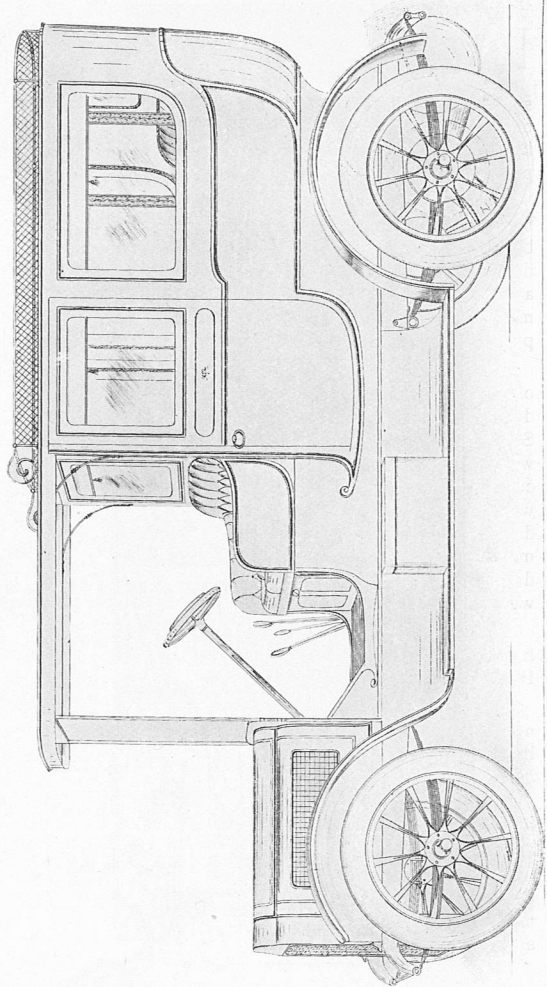
Canopy tops, Extension fronts, Cape or Victoria hoods and various special types of body, as well as side baskets, extra seats, side wind doors, luggage carriers, detachable wheels or rims, glass screens, speedometers, acetylene or electric lamps, special tyres, and all other motor accessories can always be supplied at special prices. Quotations on application.

A driver or instructor is supplied for one week, free of charge, except the man's living and travelling expenses during that period, to each retail purchaser of a 'White' Steam Car from The 'White' Company direct, 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.

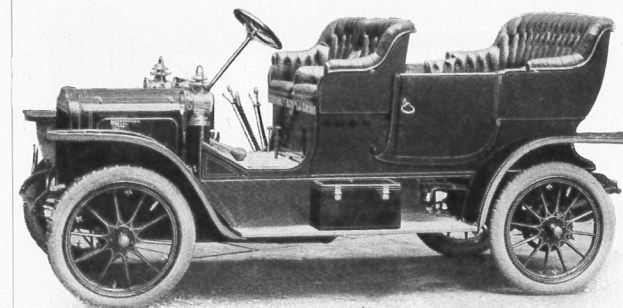
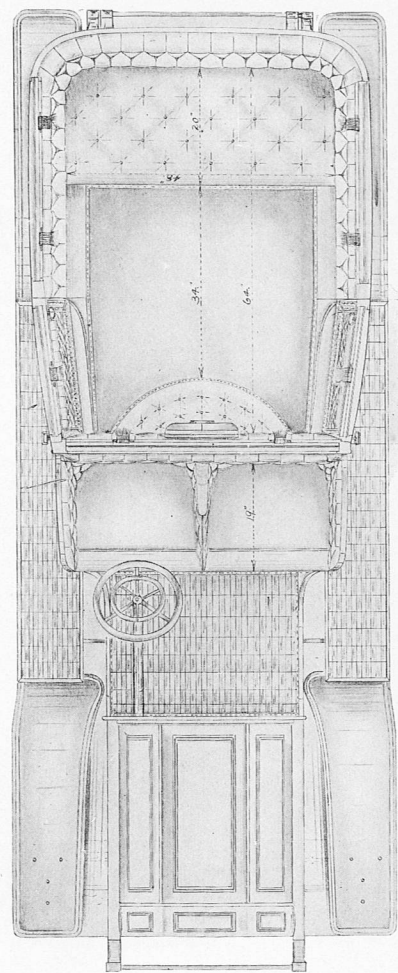
Every customer of a 'White' Steam Car is supplied free of charge with an elaborate and detailed Instruction Book, compiled specially for customers.

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 model, spares can be procured in a minimum of time, and at a minimum of cost.

Prospective customers are invited to inspect our extensive Shops and Storerooms at Carlow Street, Camden Town, N.W., which is but a few yards distant from the Mornington Crescent Station of the Hampstead-Charing Cross Tube, and but a stone's throw from the north-east corner of Regent's Park, or our branch establishment at Albion Street, Gaythorn, Manchester.



40 H.P. 'WHITE' STEAM LIMOUSINE. £900.



"FIFTEEN" DOUBLE PHAETON.

Hill was the scene of the Royal Automobile Club contest for the Yellow Trophy, which was won by the 'White' Steam Car. The excerpt from the *Autocar* reads as follows:—

"Arriving punctually at Carlow Street, we were immediately afforded an inspection of the car upon which we were to make for Chichester, and found it to be a very smart double phaeton 'White' Car, intended for despatch to an Australian customer early the following week, but which was to be used for demonstration in our case in order that Mr. Coleman might himself know that it left this country in perfect running order. The passage of London from Camden Town to Kingston, when the route is by Piccadilly and Kensington on a Saturday afternoon, is in all conscience a trial sufficient of controllability in traffic and flexibility of engine. Under similar circumstances we have often been much impressed by the supple sinuousness of six-cylinder petrol cars, but for absolute docility and consummate ease in handling the 15-h.p. 'White'

is assuredly incomparable, and though getting away from a mere crawl with the alertness of a sprinter off the mark, and slowing with equal suddenness, any sensation of engine effort was entirely absent. One would not have been surprised to have been told that the car was a soft iron armature controlled by an overhead magnet. For deftness of traffic threading we have never seen this 'White' Car



THE ROYAL AUTOMOBILE CLUB GOLD MEDAL WON BY THE 'WHITE' STEAM CAR AT THE SOUTH HARTING HILL-CLIMBING CONTEST.

equalled. Doubtless much is due to the skill of the driver, who is a past master at 'White' car driving, but from close observation it was evident that the remarkably simple system of control and the absolutely immediate response of the mechanism to the driver's will was a great factor in the question.

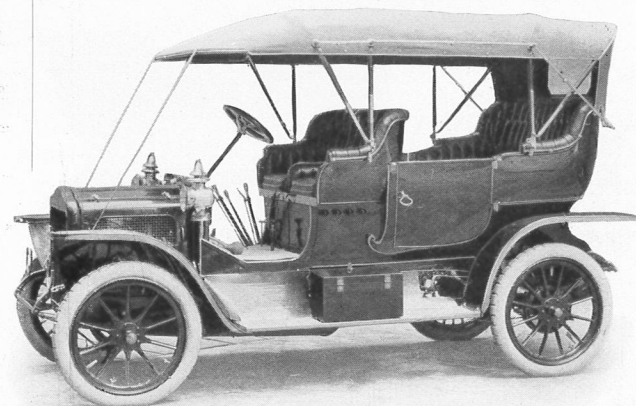
"With town behind us, we were afforded an

opportunity of experiencing the remarkably regular manner in which the 'White' Car covers distance without hurry, for the reason that, while never driven at a speed which would cause an A.A. scout



SILVER CUP WON BY THE 'WHITE' STEAM CAR IN THE ROYAL AUTOMOBILE CLUB DUST TRIALS.

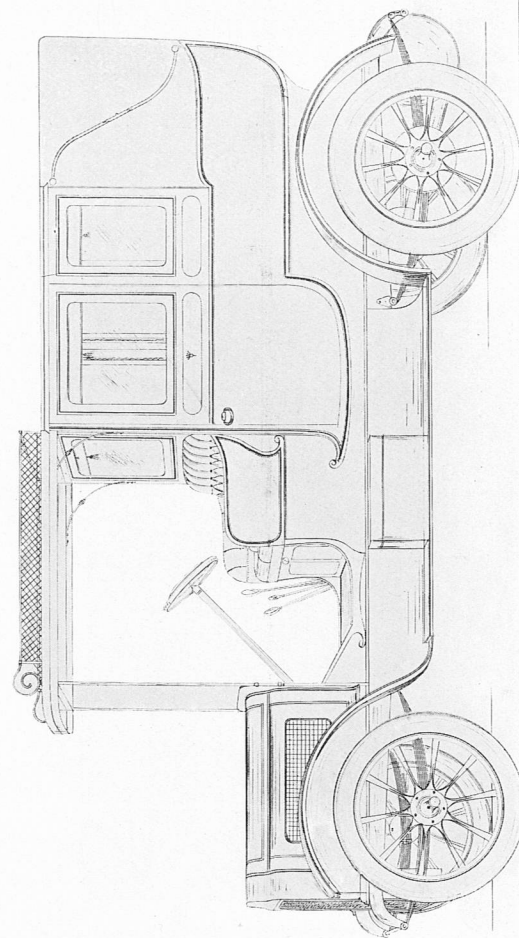
to raise his hand, the rises were disposed of at an equal speed with the levels. And always without any sense of effort, the drive of the 'White' engine suggests nothing more than an elastic draw bar



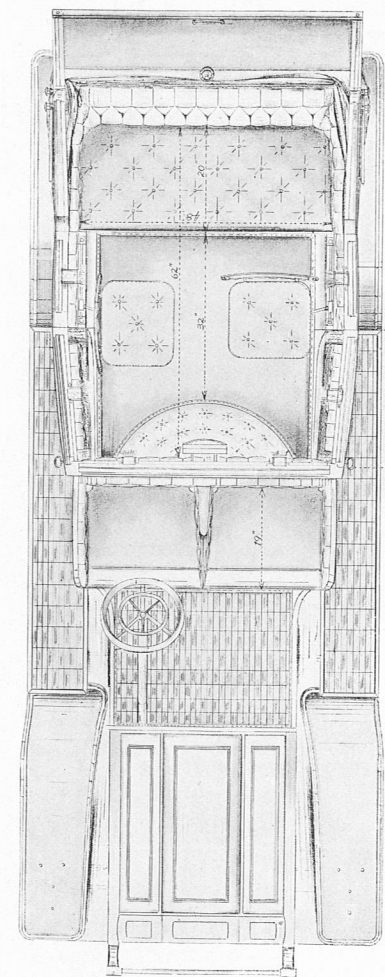
"FIFTEEN" CAR WITH CAPE HOOD.

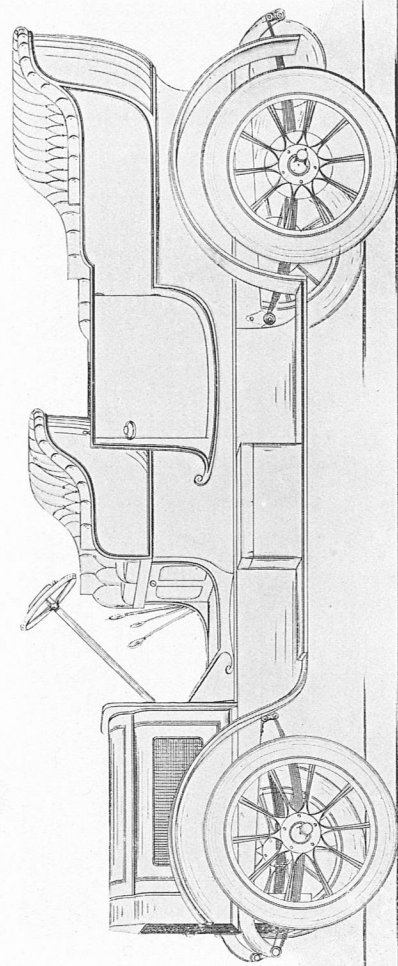
pull, which, coupled with excellent springing, makes for the most delightful progression.

"As the rare old Portsmouth Road was followed to the Jolly Drover, beyond Liphook, there was nothing to put the climbing powers of the car to anything like an extreme test until the ascent to the Hind Head, with its many memories of past and gone R.A.C. hill-climbs, was reached. Here, in spite of the varying gradients, the same speed was maintained with but little more throttle, the marvel all the time being the extraordinary steadiness of the steam gauge needle. 'You'll see,' said our cicerone, 'that the generating system just takes care of itself; and though we glued our eyes for long periods to the gauge dial, the black finger seemed ever riveted to 600 lbs. The feed of fuel and water is absolutely automatic and exact. The driver never

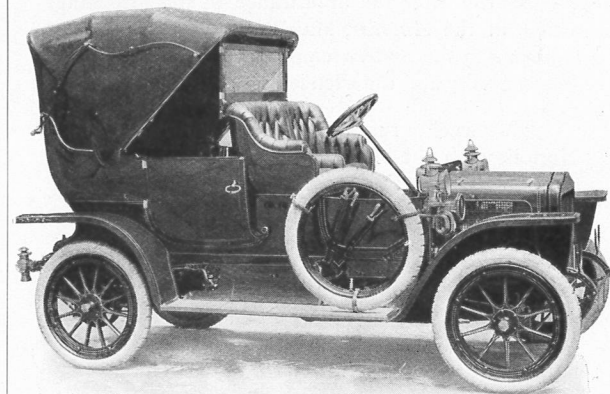
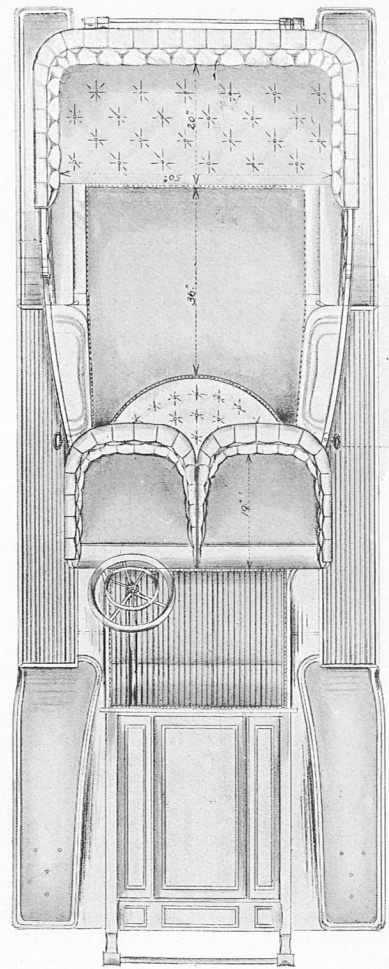


40 H.P. 'WHITE' STEAM LANDAULETTE. £900.





40 H.P. 'WHITE' STEAM TOURING CAR. £800.



"FIFTEEN" CAR WITH VICTORIA HOOD.

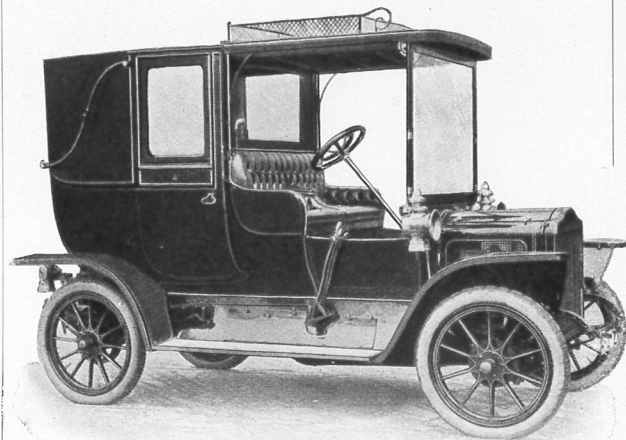
gives it a thought. For whatever effort, and however suddenly the driver may call upon his car, it responds instantly, like a thing of life.

"Before regaining the Portsmouth Road, and after an extremely steep descent, which served to demonstrate the smoothness and power of the 'White' brakes, we found ourselves at the foot of the celebrated South Harting Hill, which could on no account be left unconquered. So we climbed it twice, once for the car and once for the view, which, as it stretches away over Hampshire and Surrey, is hardly to be matched in the South of England. However fearsome this steep may have proved to cars in the past, the 15-h.p. 'White' treated it as a thing of nothing worth, for even on the dreaded quarry stretch its speed never fell below the limit, while the car even made steam as it climbed. And all again as quietly as on the level, and always with



THE YELLOW TROPHY WON BY A 30-H.P. 'WHITE' CAR AT SOUTH HARTING HILL.

The Yellow Trophy is the most handsome and important prize for hill-climbing efficiency ever competed for in Great Britain. To win it the 'White' Steam Car gained more efficiency marks than any of its 56 competitors, among which almost every high-class petrol car of hill-climbing reputation was represented.



"FIFTEEN" LANDAULETTE.

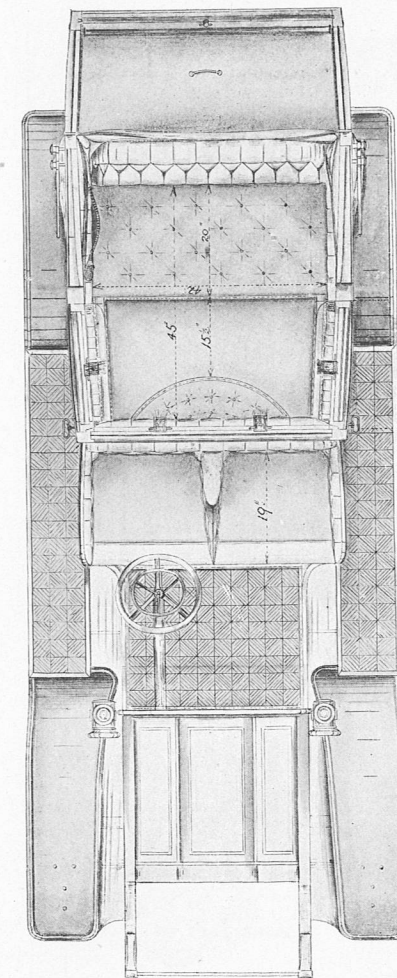
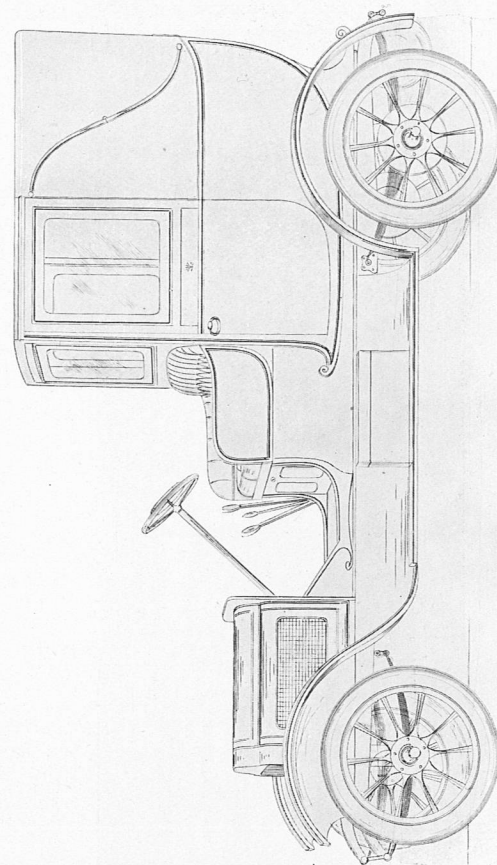
that marvellous sense of lack of effort. Agents and police were a trifle too conspicuous for comfort on the Portsmouth Road, so Burford Bridge was reached by Haslemere, Albury, Shere, Gomshall, and Dorking, whence after lunch the steep winding climb on the Burford Bridge and Bookham Lane was disposed of with the greatest ease.

"The further return to Town was marked by no particular incident, save the ever sweet running of the car, but the trip as a whole has left us with the indelible impression that the very best that has been done in the matter of petrol propulsion by many firms has been most fully achieved by one at least in the case of steam, and that one the White Company, with the 1909 'White' Car."

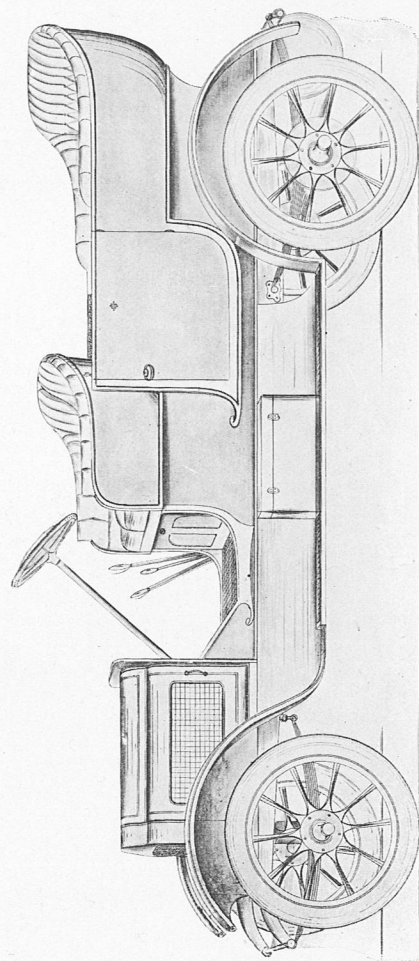
Shortly after the appearance of the foregoing article in the *Autocar*, Max Pemberton wrote the following in the *Sphere*, emphasizing power on hills, the flexibility and the silence of the 'White' Car :—

"My weekly run has been through the wilds of Norfolk upon one of the new 15-h.p. 'White' steam cars. I read in the *Autocar* an eloquent appreciation of this remarkable engine and am in entire accord with the writer. Its speed and power are so surprising, that even the true petrolite must pause. Is it possible that a revolution can be brought about now at the eleventh hour? Of one thing I am quite convinced and it is this, that no 15-h.p. *bona-fide* touring car could live with the 15-h.p. 'White' upon a give-and-take road. Its hill-climbing qualities are equal to those of any 40-h.p. with which I am acquainted, and needless to say the old delightful flexibility and silence of steam are there to charm as ever."

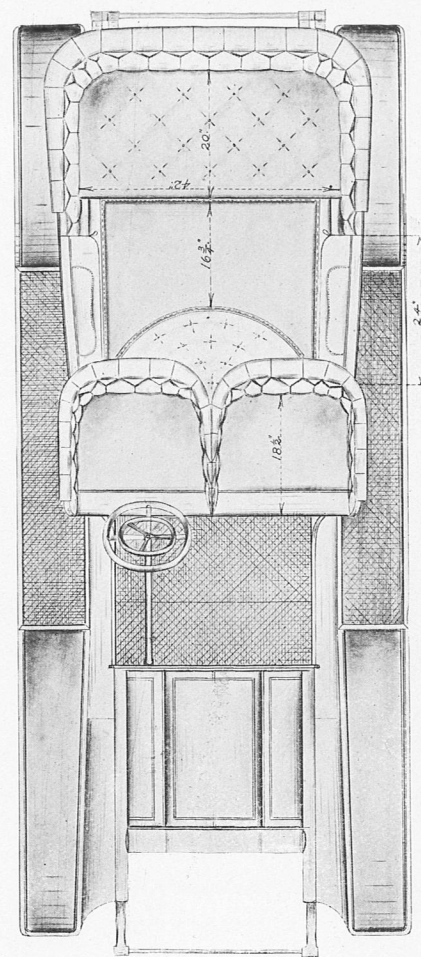
Excellent as is the 1909 "Fifteen" 'White' Steam Car in the eyes of the writers thus quoted, the 40-h.p. 'White' Steam Car of the 1909 model made quite as great an impression on Gerald Biss, who wrote an article in the *Standard* upon his run on one of the larger model 'White' cars. As his article covers such points as absolute flexibility, hill-climbing, and perfect motion to the point of luxury, it is well worth the perusal of anyone interested in this type of car. Mr. Biss's article further contained a note about the completeness of the works of The White Company's London Branch House at Carlow Street, Camden Town, a few yards from the Mornington Crescent Station of the Charing Cross-Hampstead Tube, and within a little more than a stone's throw of the North Eastern corner of



"FIFTEEN" 'WHITE' STEAM LANDAULETTE. £525.



"FIFTEEN" 'WHITE' STEAM TOURING CAR. £425.

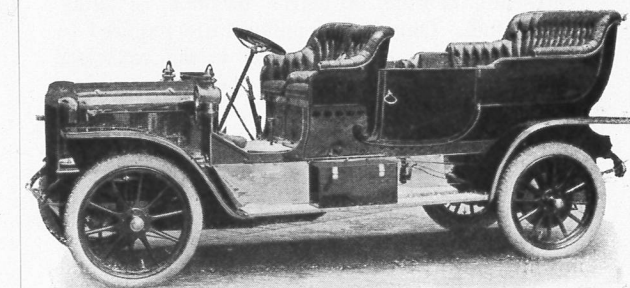


Regent's Park. The following is a portion of Mr. Biss's article in the *Standard* :—

"Not that we ourselves were making much dust, as I was on one of the new 40-h.p. 'White' Steam Cars, driven by Mr. Frederic Coleman himself, and the cars, standing high off the ground as these cars do, raise so little dust that they were barred from the last R. A. C. dust competition. Powerful as was last year's 30-h.p. model, the new one proved itself infinitely more powerful, so that Mr. Coleman did not care to let it out until he had tested how it was running. It is what I would call an 'armchair' car with a sofa behind, and although the wheel base is comparatively short, the chassis admits of a far more roomy body than would be possible on a petrol chassis of the same size. The running is so smooth that all sense of pace is lost, and there is no danger to occupants or public, as the throttle-control is so efficacious and so rapid. Round corners for this reason, the 'White' steamer has a big pull off its petrol rivals, while uphill it is a revelation even to the experienced. In fact, it appears to go better, if possible, and faster up a long steep hill than on the level. The very smoothness and the silence leave one with a sense of flight, rather than one of internal propulsion. Exactly how fast the new 40-h.p. is I would not dare to say, but the greatest point is the consistent average, which can be kept up down hill or up mountains, allowing always for proper and decent driving at cross roads and through villages and towns; and it is the average which tells in any long run. This big 'White' steamer is the last word in luxury, with its gearless silence and smooth running, its big body and sense of security. On Saturday

before we started I went over the 'White' Steam premises in Camden Town. I had only been there once before, at the start of the Royal Automobile Club's 'Two Thousand' trial last summer, and I was frankly surprised at their size and completeness. In addition to the 'White' Steamer's business and the importation of cars, the repair work of the hundreds of cars now on the road (though the 'sick room' was conspicuously empty), the spare parts department, the testing room, the showroom, and the offices, there is a huge body building business from Alpha to Omega in the very heart of London; and I saw cars of all descriptions and chassis of all makes in the process of being turned out for the road. It is a wonderful building, four storeys high, reached by a large open lift, which can carry a cargo of cars at a time, modern throughout, fireproof all over, and splendidly organized in every detail. I have not been more interested for a long time. Things on a big scale cannot but fascinate."

One of the great points of the 'White' Car—economy—was brought forth prominently by the



"FORTY" DOUBLE PHAETON.

announcement of the anticipated tax of 3d. per gallon on motor spirit. The *Sunday Observer*, in its first issue after the announcement of the tax, wrote as follows:—"The threepenny tax on petrol may hit the user of a motor car pretty hard, but some motorists will find silver lining to the cloud. Those motorists who are lucky enough to own one of the new 15-h.p. 1909 model 'White' Steam Cars will be able to sooth themselves with the fact that if they choose to do so they can run on paraffin just as well as petrol with this type of car. The 'White' Steam Cars have been noted for years for economy of running as far as tyres and repairs are concerned, and now that they have the lead over the petrol car in the matter of cost of fuel the makers of these cars feel that it is indeed an ill wind that blows nobody good."

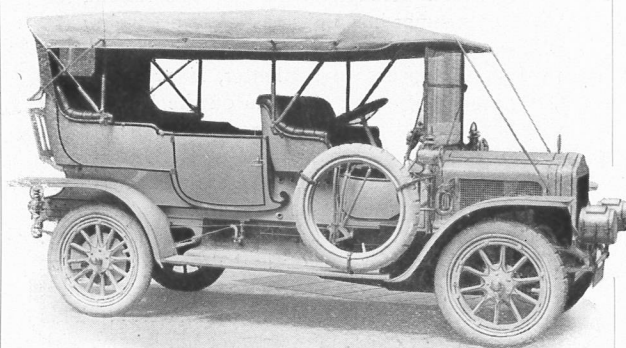
As for the degree of success obtained by the designers of the 'White' Steam Car in adapting the car for the use of paraffin, it is only necessary to say that when the car is in operation, it is practically impossible for anyone to tell whether paraffin (kerosene), benzine, or petrol (gasoline) is being used as fuel. Only a few minutes are required to make the necessary adjustments to the vaporiser and to the shutter controlling the amount of air admitted to the burner so that the fuel may be changed from paraffin to petrol, or *vice versa*.

The *Motor World*, published in Scotland, contained an article during the spring of 1909 on a long run on a "Fifteen" 1909 model 'White' Steam Car, in which the writer dilated upon the simplicity and ease of handling the car, as well as its hill-climbing powers. From that article we quote as follows:—

"On the long steady climb the 'White' Car

showed splendid pace, but it was not until we reached the mountain road on the return journey, leading from Comrie over to Ardoch or Bracco, a few miles from Dunblane, that the steamer revealed its remarkable climbing powers. For miles the narrow and badly surfaced road winds upward until an altitude of several hundred feet above sea level is reached, but the greater the gradient the more the 'White' revelled in its desire to reach the summit in the shortest possible time. It is no exaggeration to state that the car never slackened speed, no matter how severe the climb. The roads seemed to be level, and at times the silent rush up a particularly steep portion of the long hill seemed uncanny. The absence of a labouring machine or humming gears added to this effect.

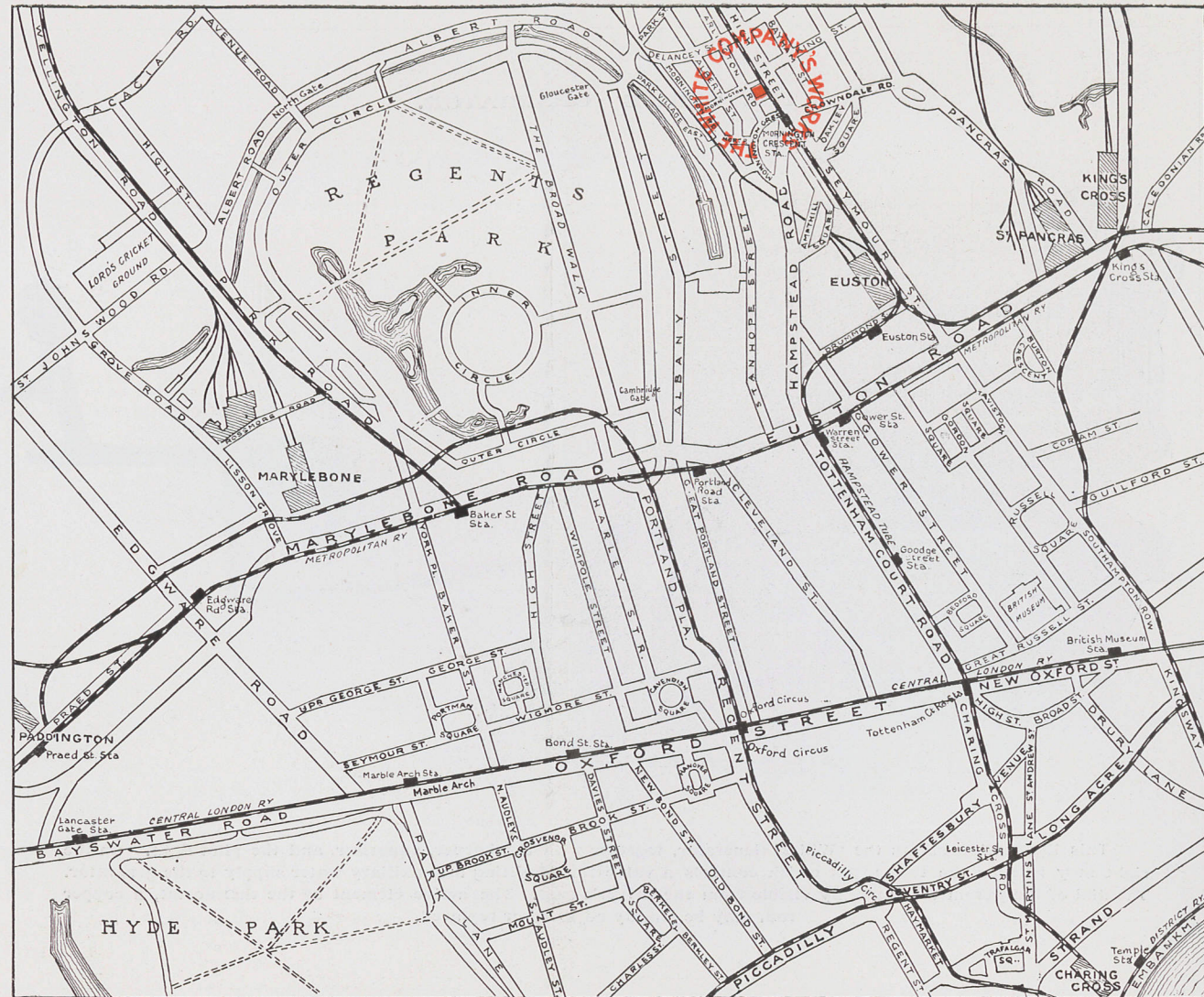
"Most people are inclined to the belief that a steam car can only be efficiently handled by an engineer. Perhaps this was so in the early days, but



"FORTY" TOURING CAR.



THE WHITE COMPANY'S WORKS,
AT CARLOW STREET, CAMDEN TOWN, LONDON, N.W.



experience and ingenuity have rendered the working of a steamer entirely automatic—maybe even more so than a petrol vehicle. It is a fallacy to imagine that the boiler and the burner require careful nursing. At no time during a journey of over 130 miles was the driver on this particular 'White' Car observed to remove his hands from the steering and throttle wheels. From the moment the driver takes his seat at the wheel the entire process of feeding the generator, raising steam, and controlling the burner is automatically performed by various ingenious contrivances. Motoring on a 'White' Steamer is undoubtedly the simplest and least troublesome of pastimes. A touch of the throttle wheel and the car will crawl with perfect ease at a snail's pace, while a further movement of the fingers will send the vehicle along the road like a bolt from the blue."

To give another quotation from the *Motor*



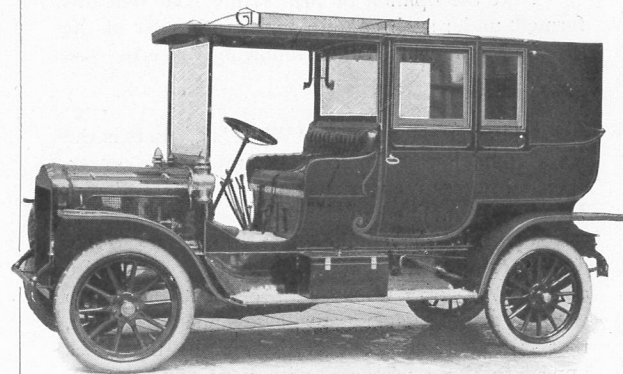
"FORTY" LIMOUSINE.

Press we take the following from an article written in the *Motor* by one of the staff of that paper whose business it is to make weekly trips on different types of cars with the idea of chronicling from each the points of interest for readers of the *Motor*. Better testimony as to the flexibility and power on hills of the 'White' Car or of its regular running could hardly be found. The run, which is described in the following excerpt, was made in the snow on one of the worst days of the early Spring, and the description of the weather given in the *Motor* was as follows:—"That drive to Dunstable I shall long remember, for the surfaces were as bad as one could find on third-class cross-roads, the wind blew hard, nearly straight from the North, and a continuous drizzle of partly-frozen sleet stung our faces as though millions of pins were being shot at us."

Note the opinion of the 'White' Car that was formed, under such conditions, by the writer of the article from which the following excerpt was taken:—

"The very latest of the 'White' Steamers is the 15-h.p. model, which the company rate at this power, although, after my experience on a car last Thursday, I should be inclined to say that the power actually developed by the engine must be nearer 40-h.p. under certain conditions. . . . It is this entire absence of worry about gear change, and as to whether or not the change will be made noiselessly, that is undoubtedly one of the charms that does appeal to those who are, with very good reason, enthusiastic in its praise. . . . The ten mile speed limit on the hill leading up into St. Albans

was a fine occasion for seeing how the engine would drive the car below this rate as smoothly as when, whenever a clear piece of road was available, a mere touch on the throttle wheel would carry the car forward at a pace so quickly accelerated that one could hardly credit the tiny engine with ability to exert such tremendous power. Beacon Hill, tough grade though it be, was a mere promenade, the car romping up at much over legal limit. Dropping down the hill again, and running into Wendover, the remainder of the day's journey was occupied in negotiating a succession of very steep hills, including that out of Great Missenden, into the village of Chenies, from Chesham, the long and winding pull-up out of Rickmansworth that has been the scene of so many accidents, and then a final tit-bit to Harrow Church from the railway



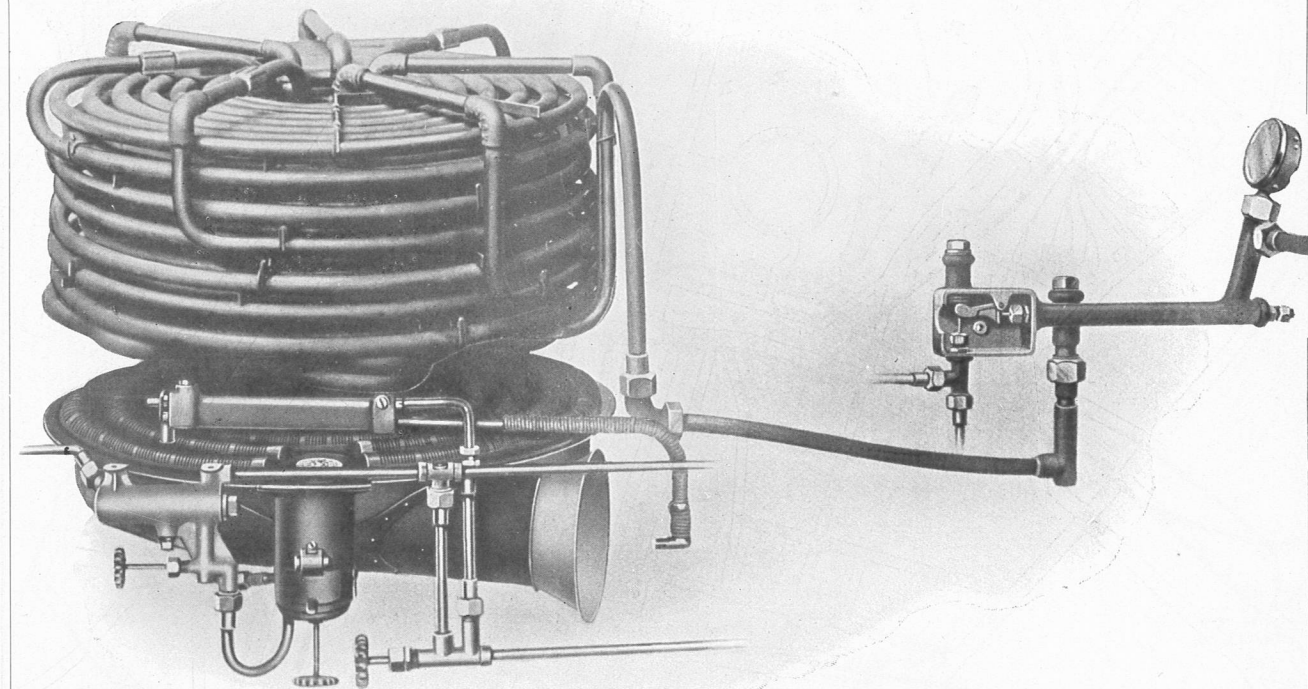
"FORTY" LANDALETTE.

station. Up every one of these it was not a question of merely reaching the top, but rather as to how fast many of the sharp and steep bends could be rounded within a margin of safety, for the speed had to be cut down on the corners, only to be immediately accelerated. It is on hills that the 'White' Steamer shows to the fullest advantage, and the manner in which it takes anything you care to put it at, in its stride, would be a revelation to those accustomed to the steady ambling of a 25-h.p. car with a gear box. Perhaps I can bring this fact better before readers' minds by comparing its performances with that of a high quality 4-h.p. motor bicycle. On a long, straight, and steep ascent there would not be much to choose between the two, though possibly the bicycle would be superior on a twisty grade, owing to its ability to take corners at high speed."

In announcing the 1910 'White' models, in its issue of July 20, 1909, the *Motor* said :—

"The White Company has ever sought the high-class trade, preferring to keep quantity subordinate to quality, and thus turning out a certain number of sound, reliable, and desirable vehicles rather than a quantity to which the same individual attention could not be given. One great effect of the pursuance of this policy—quite apart from the very pleasing fact that the output of a factory run on these lines never hangs fire—has been to place the name of the 'White' Steam Cars on a level that has not been exceeded by that of any other pleasure vehicle, whether steam, petrol, or electric."

THE 'WHITE' GENERATOR.



This illustration shows the 'White' Generator, together with the burner, vaporiser, and the pilot light. On the right may be seen the thermostat which controls a valve for admitting an auxiliary water supply to the generator. The dial of the pyrometer is plainly visible from the driver's seat. The active element of the thermostat, a copper rod, may be readily adjusted or replaced.

from one coil to another by gravity and renders the circulation down through the generator dependent upon the action of the pumps.

The operation of the generator is as follows: Water is pumped from the tank through the feed-water heater and into the upper coil and, as it is forced into the coils below, its temperature gradually rises, until at some variable point in the generator it "flashes" into steam. In the lower coils the steam receives a high degree of superheat, and in this condition it leaves the generator and is conducted to the engine.

As regards the safety of the system, it should be noted that there is but little water and steam in the generator at any one time and, even in the event of its simultaneous liberation, the effect would be inconsequential. Even if rupture is effected by deliberate intention, it will not result in anything more serious than a split tube, in which the rent acts as a self-provided safety-valve, the effect being identical with that produced by the opening of the actual safety-valve.

In the 'White' Steam Car there is no "water-level" to maintain, there is no need of water gauge, water-glass, float, fusible plug or other device, such as are used in connection with ordinary types of boilers. So rapid is the circulation through the generator, that mineral matter, whether in solution or in suspension in the water supplied to the generator, is carried through the generator without causing any incrustation, even where "hard" water is invariably used.

THE 'WHITE' REGULATING SYSTEM.

THE amount of water supplied the generator and the amount of fuel supplied the burner vary with different running conditions. Both the water and fuel supply are automatically controlled and require no attention on the part of the operator.

A water-regulator of the diaphragm type alternately directs toward the generator or diverts therefrom the water from the pumps, according to whether the steam pressure is below or above the normal working pressure. There are two separate paths by which water may reach the generator from the pumps. One path is by way of the flow-motor and the other is by way of a thermostat. The first path is the main source of supply, while the second path is an additional source of supply which comes into action only when additional water is needed. The opening and closing of the fuel supply to the burner is controlled by the flow-motor. Whenever water is passing through the flow-motor, which will happen whenever the engine is running and the steam pressure is below normal, a valve in the line supplying fuel to the burner will be open and the fire will be "on." At all other times the supply of fuel to the burner will be shut off. When the temperature of the steam tends to exceed the normal, the thermostat comes into action and permits additional water to enter the generator. Since the amount of fuel is not increased, this additional supply of water brings the temperature of the steam at once back to normal.

The action of these three regulating devices maintains the steam at a practically constant pressure with a uniform degree of super-heat.

The 'White' Steamer is now beginning to be generally recognised to be "in a class by itself" for luxury of motion. It has many desirable qualities not possessed by any other car in the motor market. It is the only car which can be driven at any and every rate of speed without the shifting of gears. For this reason the passengers in a 'White' car enjoy a degree of comfort not obtainable in any other type of motor car. The superiority of the



GOLD MEDAL WON BY THE 'WHITE' LANDAULETTE IN THE TOWN MOTOR CARRIAGE COMPETITION.

'White' in these respects was well summed up in the following official report to the Quarter-Master General of the United States Army: "The 'White' is simple in operation. The means of propulsion being steam, it is better suited for transportation of the sick and wounded than gasoline (internal combustion) cars on account of its free and smooth running, freedom from violent vibration and ease of controlling the speed between maximum and minimum without jerks or jolts." These considerations, which influenced the United States War Department (and later the United States Navy

Department) to adopt the 'White' exclusively for motor ambulance work, should incline the private purchaser, who values simplicity and comfort, toward the 'White.'

Finally, we can say, as we have said in former years, "If the combined opinion of the best-informed writers on motoring subjects is so favourable to the 'White' Steam Car, is it not worth your while to glance through the following pages and get a general idea of the class of vehicle manufactured by The White Company?"

But don't let the matter rest with that. Write to The White Company and make arrangements for a personal test of the car. Experience for yourself those characteristics of the 'White' Steam Car which have placed it so high among the finished products of motor car manufacture, and which cause it to stand absolutely alone as representative of all that is best in the application of steam, the world's standard power, to the automobile of to-day.

The huge modern factory building in Carlow Street, Camden Town, with its one million square feet of floor space, which is the London home of The White Company, is particularly easy of access, and certainly well worth a visit.

But a few yards distant from the Mornington Crescent Station of the Hampstead-Charing Cross Tube, and but a stone's throw from the Gloucester Gate of Regent's Park (at the north-east corner of the park), it is within ten or fifteen minutes at the most by tube, taxi-cab, or car from any point in the West End of London.



THE 'White' Steam Cars for 1910 are built in two distinct models, which, while differing from each other widely in power and size and price, resemble each other in their general lines of construction.

The larger of the 'White' Cars is known as the 40-h.p. model. It will sell, equipped as a complete open touring car to seat five or seven, for £800. The wheel base of the 40-h.p. car will be 122 inches, and the wheels will be 36 inches in diameter. The engine is compound, of a practically identical design to that with which the 1909 40-h.p. 'White' Steam Cars were equipped. This 'White' engine sets a high mark for simplicity in motor

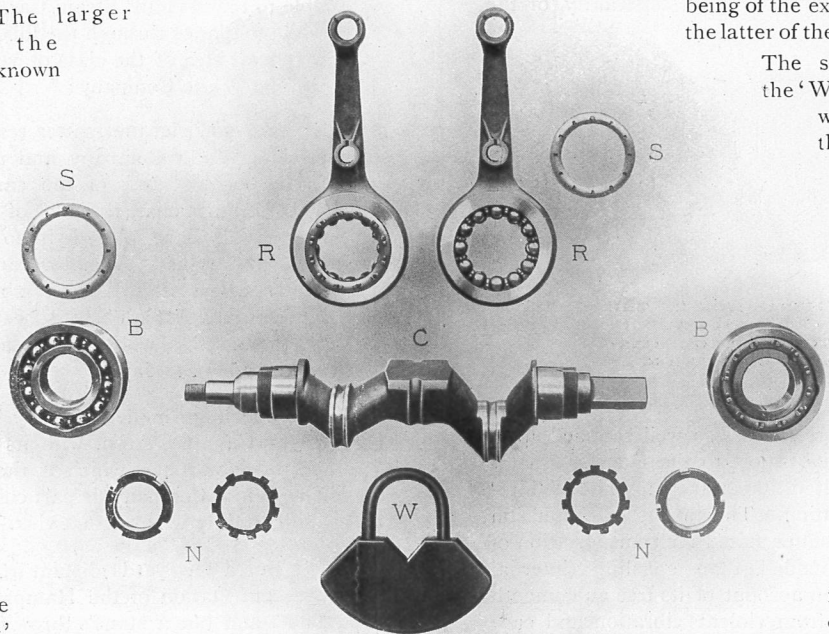


FIGURE 1. The Crank-shaft and Parts attached thereto
 C—Crank-shaft W—Counter weight
 B, B—Crank-shaft Bearings R, R—Connecting Rods with ball bearings in place
 N—Lock Nuts and Washers S, S—Ball Retainers

car construction. The high pressure cylinder is of 3 inch bore; the low pressure cylinder of 5 inch bore, and the stroke is $4\frac{1}{2}$ inches. The frame of the 40-h.p. car is of heat-treated pressed steel. The front axle is of the tubular type; the front springs are 44 inches long and $2\frac{1}{2}$ inches wide; the rear spring 55 inches long and $2\frac{1}{2}$ inches wide. Both the foot-brake and the hand-brake act on drums on the rear wheels, the former being of the expanding type and the latter of the contracting type.

The smaller model of the 'White' Steam Cars will be known as the "Fifteen." It will sell as a completely equipped open touring car with four seats for £425 complete. The wheel base is 110 inches, and the wheels 32 inches in diameter. The engine, except as regards size, is identical with that of the 40-h.p.

The high pressure cylinder is of $2\frac{1}{2}$ inch bore; the low pressure cylinder is $4\frac{1}{4}$ inch bore;

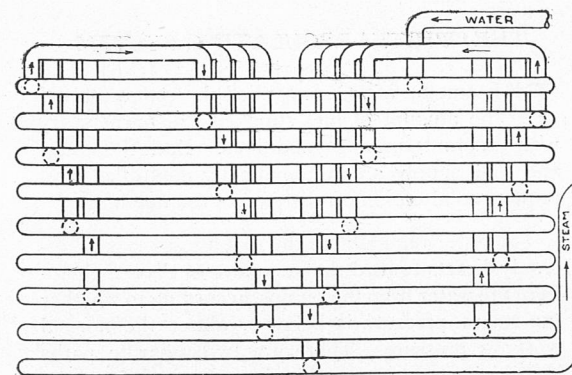


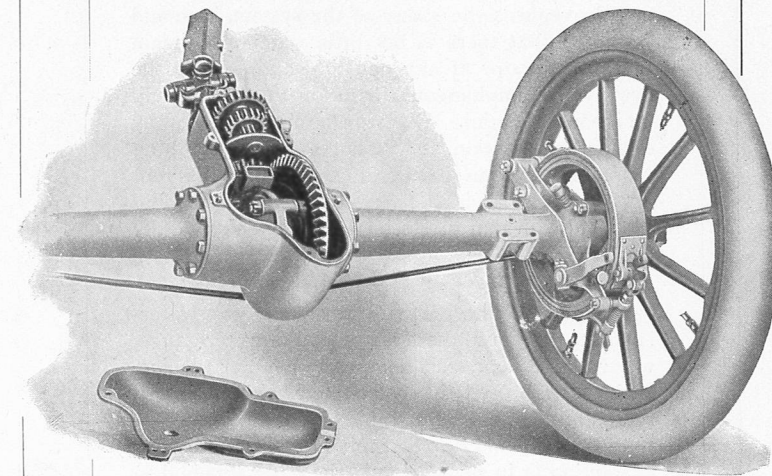
Diagram showing circulation through the Generator

The 'White' generator is radically different from any other type of boiler ever constructed. In the first place, in every other known type of boiler the water is at the bottom and the steam at the top. In the 'White' generator the water is at the top and the steam at the bottom. This fact alone is sufficient to show the unique construction of the 'White' generator.

The 'White' generator consists of nine coils of steel tubing superimposed above one another. The seven upper coils are wound spirally, while the two lower coils are wound in what might be called "gridiron" fashion. The several coils are joined in series, and if the whole should be unwound and straightened out, the generator would be seen to be made up of a single, long piece of tubing. Below the coils is located the burner. The coils offer a

very large heating surface, so that as the products of combustion pass up between them, practically all their heat is absorbed by the coils.

The connections between the coils are so made that the water or steam, in order to pass from one coil to that next below, must be forced up to a level above the top coil and then pass down again. This feature is an important element in the construction of the generator, as it prevents water from running



Rear Axle and Brake Construction of the "Fifteen" 'White' Steam Car

the entering steam quickly and effectually removes the water.

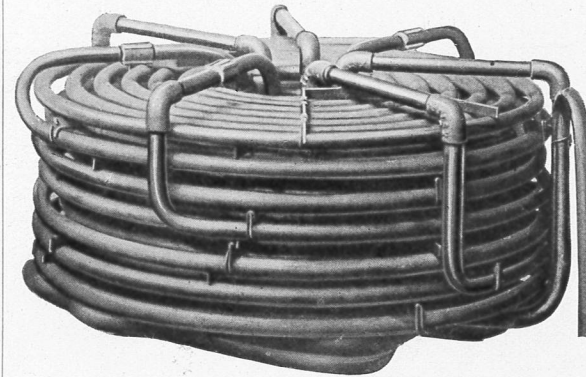
The engine is so adjusted that it runs normally on "cut-off"—that is, the admission of the steam to each cylinder is stopped before the end of the stroke, and the steam then works expansively for the balance of the stroke. In starting the engine, the pushing of the simpling pedal allows the engine to take steam during the full stroke. There is also a "cut-off" pedal which, when pressed, produces the same result. This "cut-off" pedal is used only when slow, hard pulling is required, as in climbing particularly steep grades or running over very heavy roads. An interesting feature of the Joy valve mechanism is that, when the "cut-off" is changed, the "lead" of the valves is unchanged, and the engine thus runs more smoothly on "cut-off" than was possible with the Stephenson valves. The engine is reversed and the "cut-off" is changed by simply changing the tilt of the guide.

The engine is supported on two cross-members of the frame, which are so placed that the entire weight of the engine is behind the front axle. The engine is so hung that the driving shaft is perfectly horizontal and, as there is neither clutch nor transmission gear on the 'White' Steamer, the drive is direct and positive from the engine through the driving shaft to the rear axle.

The exhaust pipe from the engine to the condenser is located on the right-hand side. Within this exhaust pipe there is a coil of piping, through which the water from the pumps circulates on its way to the generator. This arrangement thus constitutes a neat and compact feed-water heater which performs the double function of heating the feed-water and of aiding the process of condensation.

THE 'WHITE' GENERATOR.

THE generator is of the same construction as in former years. In the 40-h.p. car and the "Fifteen" the generator tubing is of one-half inch internal diameter, but the length of tubing used differs, of course, for the two models.



The 'White' Generator

The 'White' generator is the feature which, more than any other, distinguishes the 'White' Steam Car from all other automobiles. Furthermore, there is no other make of car embodying any of the 'White' principles of generator construction, owing to the protection afforded to the inventor by the patent laws of all civilized countries. The generator is located near the centre of the chassis. It is enveloped by an asbestos insulating casing, which in turn is surrounded by an annular flue, through which the products of combustion are conducted downward and dissipated into the air without being in any way noticeable.

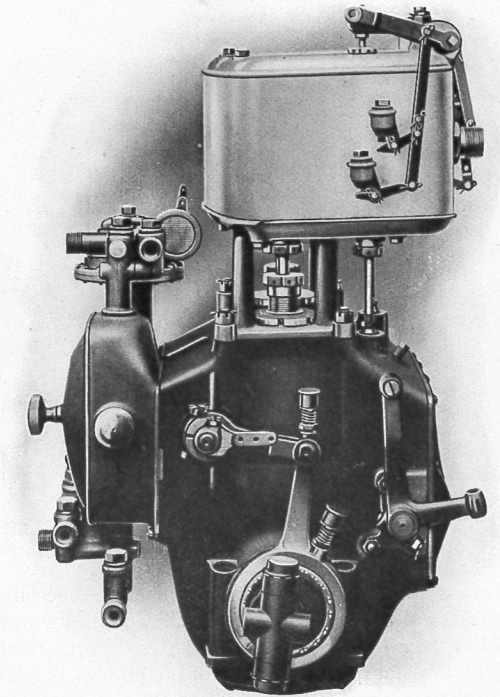
the stroke is 3 inches. The frame is of heat-treated pressed steel. The front axle is a one-piece forging of I-beam cross section. The front springs are 37 inches long and $1\frac{3}{4}$ inches wide; the rear springs are 45 inches long and $1\frac{3}{4}$ inches wide. Both the foot-brake and the hand-brake act on drums on the rear wheels, the former being of the expanding type and the latter of the contracting type.

As previously mentioned, the engines in the two new models differ only as regards dimensions, and, therefore, the following description applies to both models. The 'White' Steam engines are fitted with the Joy valve motion, which is actuated directly from the connecting rods; two of the pumps, all four of which are located on the left-hand side of the engine, are driven by the levers of the valve mechanism, and the other two by an eccentric located outside of the crank case at the rear of the engine, and forged integrally with that part of the universal joint which is attached to the crank-shaft.

This construction permits of a great simplification of the engine. Few parts are necessary, weight is saved, and the cylinders are brought close together, permitting the use of a short one-piece crank-shaft. This crank-shaft is a one-piece forging of tool steel. As shown in Fig. 1, there are but two main bearings to the crank-shaft. The main bearings are of the annular type, and may be removed from the crank-shaft by taking off the lock nuts and lock washers, as shown in Fig. 1.

The two main bearings and the two connecting rod bearings are fitted with ball separators and the balls are of extra large size. The connecting-rods are one-piece forgings. Both the high-pressure valve and the low-pressure valve are piston valves.

Steam is admitted through the centre of the valves and exhausts at the ends. The pressure on the valve stuffing boxes is thus reduced to that of the exhaust from the respective cylinders. A small arm on the end of the pump rocker-shaft is connected by means



The 1910 'White' Engine.

SEVEN YEARS OF 'WHITE' PROGRESS.



1901.

1902.

1903.

1904.

1905.

1906.

1907.

of a rod to a ratchet device which drives the oiler placed on the dash-board. The pulley on the forward end of the crank-shaft is connected by a broad belt to the fan-shaft, and the ratio of the pulleys is such that the fan-shaft runs faster than the engine. The fan-shaft housing is held in place by eccentrics, and the tension of the belt may be readily altered by

turning these eccentrics, thus ensuring a good draft of air between the condenser tubes, which means great economy in water consumption.

The crank-case of the engine is made in one piece, but ready access may be had to all parts within by the removal of the side and bottom plates, and the crank-shaft may be taken out through

either end. Everything under the bonnet is easily accessible. Stuffing-boxes are fitted to the upper end of the slides in which the cross-heads travel, so that no oil may be splattered out of the crank-case. The pumps are entirely enclosed so that they may be kept free from dust, yet they are readily accessible. There are the most thorough

provisions for keeping the pumps and all parts within the crank-case well lubricated.

The cylinders are provided with relief valves for getting rid of any water which may be in the cylinders when starting the engine "cold." These valves are opened momentarily by a little lever on the dash, before admitting steam to the engine, and