# THE ARGYLL CAR

OF 1908

"ARGYLL MOTORS" LIMITED
ALEXANDRIA, N.B.

A. B. C. CODE (Fifth Edition).

Telephones (National)—
862 Royal, Glasgow.
863 Royal, Glasgow.

Telegrams—
"Autocar, Alexandria"

CUSTOMERS' CARS ARE DRIVEN BY MEMBERS OF OUR STAFF
ENTIRELY AT CUSTOMERS' OWN RISK

# "Argyll Motors" Limited

Manufacturers of
"ARGYLL"
MOTOR CARS
AND MOTOR DELIVERY VANS.

Head Office,
ARGYLL WORKS,

Ref:

Alexandria, BY GLASGOW. 2nd March. 1908

F.L. Ricker, Esq.,
68 Free Street,
Portland, Maine,
U.S.A.

Dear Sir,

In reply to your P.C. of 22nd ult., we have pleasure i sending you herewith copy of our 1908 catalogue giving full par :lars of our 1908 models.

No doubt you are aware of the great name the "Argyll" has made for itself during the last 6 or 7 years, and we have n hesitation in saying our 1908 models represent the best value o :tainable anywhere. All parts are made to gauge and are absolut interchangeable, while in the construction of the cars nothing the very finest of materials is used , and they are capable of amount of hard work.

For a medium powered touring car there is nothing to our 14-16 H.P. "Model de Luxe" which is now recognised as being leading British car of its class, while for a powerful touring we can recommend the 40/H.P. with every confidence.

Both of those models are built throughout at our Works here, which are acknowledged to be the finest in Europe, and should you be over in Scotland during the summer, it would afford us much pleasure to have a call from you.

We trust that you will favourably consider the claims of the "Argyll", and should you decide to favour us with an order and let us have a full specification, we would guarantee to have the car complete and ready for the road within 3 or 4 weeks from date of receipt of specification.

Assuring you of our best attention.

We are,

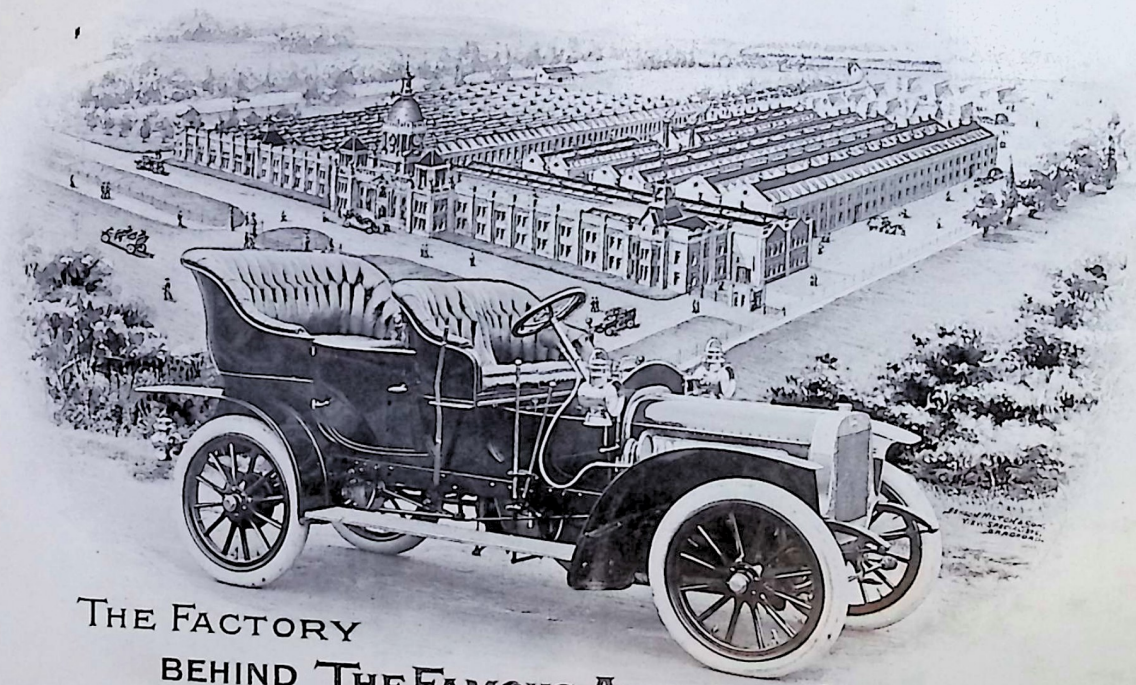
Yours faithfully,

ARGYLL MOTORS, Limited

J. M. Carmichael

Secretary

encl; catalogue.



THE FACTORY
BEHIND THE FAMOUS ARGYLL CAR.

# PREFACE

THE story of the Argyll car has been told and re-told, and the merits of the car made known in every country where it is possible to run such a vehicle, and the most striking testimony of the popularity of the Argyll car is the immense factory devoted solely to its manufacture.

A short description of this factory is given in another portion of this book, and this need not be gone into here, suffice to say that Argyll cars are manufactured under conditions second to none in the world.

No excuse is required for a publication such as this, it having the one purpose of putting before the motoring public, in as interesting a manner as possible, the details of the various models of Argyll cars.

An effort has been made throughout the volume to embody hints and such information as is likely to be of use and interest to the motorist generally, having, of course, particular reference to the Argyll, giving special attention to those details of construction most likely to be of true value to the driver or owner.

During the past year the enviable reputation of the Argyll car has been maintained, many notable performances having been made. The performances at speed trials and organised hill-climbing competitions have been made by private owners, the Company having decided not to take part in these, such contests having in a large degree developed into meetings of specially built cars, and, as such, giving the public no gauge regarding the merits of the standard types of cars. On the other hand the Company have awarded monthly trophies, valued at fifty guineas each, for the most meritorious performances on Argyll cars privately owned.

A cordial invitation is given to all interested to visit the factory at Alexandria, and become acquainted with the unrivalled facilities of the Company.

As in the past, the Company is indebted to its numerous agents and friends for their consideration and hearty co-operation in all matters relating to Argyll cars, and has to tender them its warmest thanks, and trusts that the existing feeling of good fellowship may be long continued.

ARGYLL MOTORS, LIMITED.

A General view of facade of the Argyll Works, Alexandria. The total length of frontage is 750 feet.

# Thoughts inspired by a Visit to Alexandria.

STANDARDISATION and organised system are admitted to be the chief factors in the successful production at minimum cost of any manufactured article. But a little while ago the term manufacture could only with justice be applied to the production of such things as cloth, where a completely organised system of men and machinery prevailed. The raw fibre supplied by the warehouse at one end of the factory into sliver, and sliver into rove, the rove into yarn, the yarn to cob and web, and this again into cloth.

**The Argyll Coachbuilding Shop, which in length is equal to that of the Painting, Upholstering, and Varnishing Shops combined.**

The whole process proceeded continuously hour by hour and day by day, each machine doing its part, each operative skilled in the one department, yet the whole factory so balanced and run that a maximum amount of the finished article was produced from a minimum quantity of raw material.

Such works had to be planned from the start to produce so much cloth, and that, too, of a certain pre-determined weight and quality. To attempt to spin silk in a mill designed for handling wool would be as little likely to be successful as it would be to expect to produce good cotton cloth in a factory laid out for jute.

In the field of mechanics, however, whether because of the skill of the workers, the diversity of the productions, or of the comparative smallness of the quantities of articles of one kind required, the great advantages of manufacturing rather than making seems to have been much more slowly realised. The general engineer has been at once able and willing to take orders for, and more or less successfully produce anything within the wide range of the machine tools with which his shop was equipped.

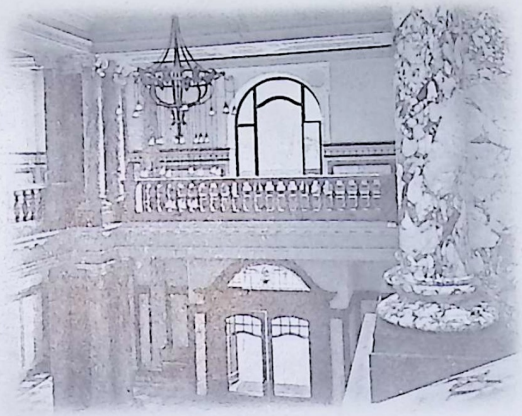
**The Allegorical Sculpturing over the Main Entrance to the Argyll Works.**

Thus we find shops having only a mere handful of men tackling jobs of the most diverse character; that, under such circumstances, they manage to produce good work at all says much for the skill of the men and the ability of their leaders. Within recent years it has become more and more clearly seen that just as silk and jute, wool and cotton, could not with advantage be spun on the same frames, or woven on the same looms, but that each to be produced to the best advantage required works designed from the bottom for its proper manufacture so is it with every engineering production.

You cannot hope to successfully turn out motor cars from boiler works, delicate machine tools in a shipyard, or locomotives in a light tool shop. The engineers of Philadelphia were amongst the first to demonstrate the truth of this proposition in Baldwin's locomotive works, where some 1,000 locos are produced yearly, and sold the

world over, at prices which compete with the makers of other countries, despite the fact that they pay higher wages than British or Continental engineers.

Their method has been followed by others, although few have had the courage or the opportunity to plan such a factory for the production of one type of engine or machine.

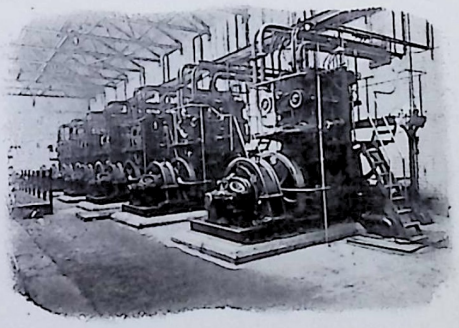


The fine Entrance Hall at the Argyll Works.

The Argyll Company have, however, done in Britain for the motor car what Baldwin did in America for the locomotive. They have designed, built, and equipped a factory solely for the production of motor vehicles; the whole system has been laid down with one end, and one end only, in view. Each individual unit performs its own operation, and that alone; from the raw material stores at one end, the material flows in a steady stream from tool to tool, never doubling on its track nor going to the same machine twice, but moving ever forward, the whole factory being just as much a complete, compact whole as a spinning mill.

Every employee is highly skilled in his own set of operations, all working together for the rapid production of as nearly perfect a car as possible. Here is it that the "Argyll car scores."

An article may be good as good can be, it may do everything that is claimed for it, yet if it does not fulfil a useful purpose, or, again, if it is not put before the people who require it, its production is in vain. Motors are built in powers so low and of so slim construction that the service to which they can be put is extremely limited, while the care which has to be exercised in their manipulation is great. Other cars are in the market of great horse-power, vehicles capable of travelling at such speeds several times that allowed by law, and far in excess of any legitimate requirements, vehicles at once costly to buy and to run.

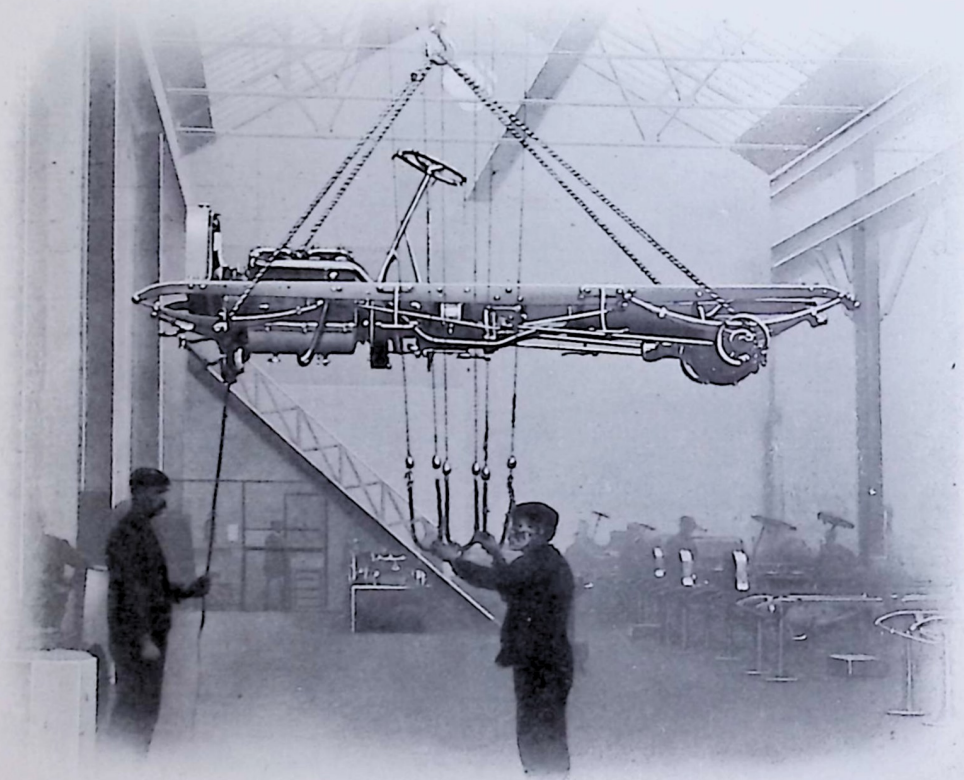


The seven 100 H.P. Engines and Generators in the Electrical Power House.

Such cars may appeal to the few, but can never be used by the many. For the

average person desiring a motor there is a comparatively small range of power within which he would be well advised to confine his choice. Too low power means limited speed, weak hill-climbing, and precludes a covered car or a big body; while great power is unnecessary and costly.

The minimum power that is found to be satisfactory for general purposes—with an open car to carry four or five people—is about twelve-horse, while the maximum that is



**Lifting a Chassis by means of a Crane in the Erecting Shop. This illustrates one of the many labour-saving devices adopted.**

necessary for a large seven-seated limousine may be put at about forty. The types of body best suited for the different needs of motoring folks are well met in a selection of open side-entrance bodies with hoods and wind-screens, landaulets for use open or closed, and roomy limousines. In providing just such a selection of powers as enumerated, with everything that could be desired in the way of open and closed bodies,

The Chassis Shop gives accommodation for 200 Chassis simultaneously.

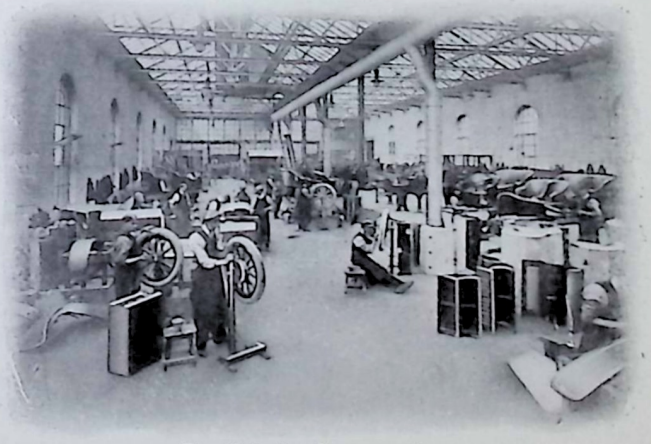
and each at prices that compare most favourably with any other in the market—does "the Argyll car score."

Iron is strong, and steel is hard; yet, when unduly strained, the toughest iron will break, and in time the hardest steel will wear when subjected to friction, and more readily if improperly lubricated. The motor vehicle is at once a marvel of strength and yet a most delicate instrument. Its reliability is now beyond dispute; its failings are few and well understood; it is no longer necessary to fear a breakdown when starting on a journey, as for anything to go wrong is for the unexpected to happen. The more annoying, therefore, is it when, whether from accident or failure of a part, one gets stuck up by the wayside and the more welcome is qualified assistance at such a time.

To possess a car that has its origin afar off and is inefficiently represented, is to be ever in danger of being stranded indefinitely for want of a suitable replacement, or because the repairer available is unacquainted with the particular type of car; while to have a car familiar to every motor engineer, and one for which spares are stocked in every important town, with qualified assistance always available, is to ensure that unpleasant as a breakdown from whatsoever cause may be, the delay caused need not be long, and the expense incurred will be a minimum. Most of the leading motor agents throughout Britain handle Argyll cars, stock replacements, and have skilled mechanics at the disposal of Argyll owners; and in this again does "the Argyll car score."

## THE FACTORY.

Alexandria is within easy reach of Glasgow, and the short railway journey is soon over. Having got thus far, the Argyll Factory is now, as it were, within sight; having arrived there, the various architectural features present themselves. To attempt to give more than a passing impression of the extent



The Painting Department.

View in Machine Shop.

of the Works would be futile with the space at command; it has to be left to the photographs published to speak for themselves, though even they do not convey to the mind a due sense of the Factory's proportions.

At the top of the grand staircase a noble corridor stretches both north and south for almost a hundred yards in either direction. In the north wing are the Managing Director's room, Chairman's room, Board room, and separate rooms for the principal officers of the Company, as well as the drawing office, tracing office, public office, waiting rooms, etc. To the south are the dining rooms for principals and staff, kitchen, recreation room, laboratory, reading room, and, at the extreme south end, the hall, with seating accommodation for 500. The rooms on the east side of the corridor are lighted from the roof, while those on the west side look out upon the Balloch road, and all are large, lofty, and comfortable. All the principal rooms are equipped with long-distance telephones.

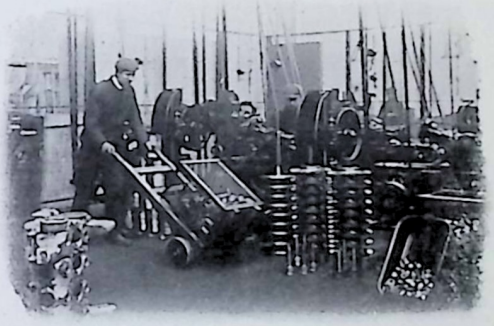
The Machine Shop, which is the largest of the manufacturing departments, covering 4¾ acres of ground, also accommodates the Engine-building Department, extending the full length of the south side of the shop. Here the Argyll engines—the machined parts having been received, through the stores, from the various departments—are put together, and afterwards run on the testing stands. Immediately to the north are the tool room and the grinding department, and beyond these is a large and extremely interesting collection of machine tools, on which various parts of the mechanism of the motor car are being turned, bored, milled, and finished. These machine tools have been brought together from the best manufacturing firms at home and abroad, a number being of American origin, while others come from Germany, and many from different places in Britain. In the equipment of the machine shop the aim of the Directors was to obtain only the best possible and most modern tools, and no pains were spared in ensuring

The Upholstering Department.

View in Machine Shop.

that every machine should be the best obtainable for the purpose for which it was intended. To produce the best work the best machinery was necessary, and the magnificent collection of lathes, milling machines, gear cutters, and gear planes, etc., installed in the machine shop is proof of the thoroughness with which the task has been faced. Power to drive the machinery in this department is furnished by gas engines and electric motors to an aggregate of about 600 horse power.

The Assembling Shop, which measures about 400 feet by 66 feet, is entirely devoted to the assembling of components. Like most of the other departments, it is lighted from the roof and by large side windows. Here are built up steering gears, front and rear axles, gear boxes, etc., the parts being supplied to this department from the stores; here are to be seen gear boxes and back axles on test, to which test all components are put previous to being returned to the store, from where they are eventually issued to be built together, forming the chassis.



View in Machine Shop.

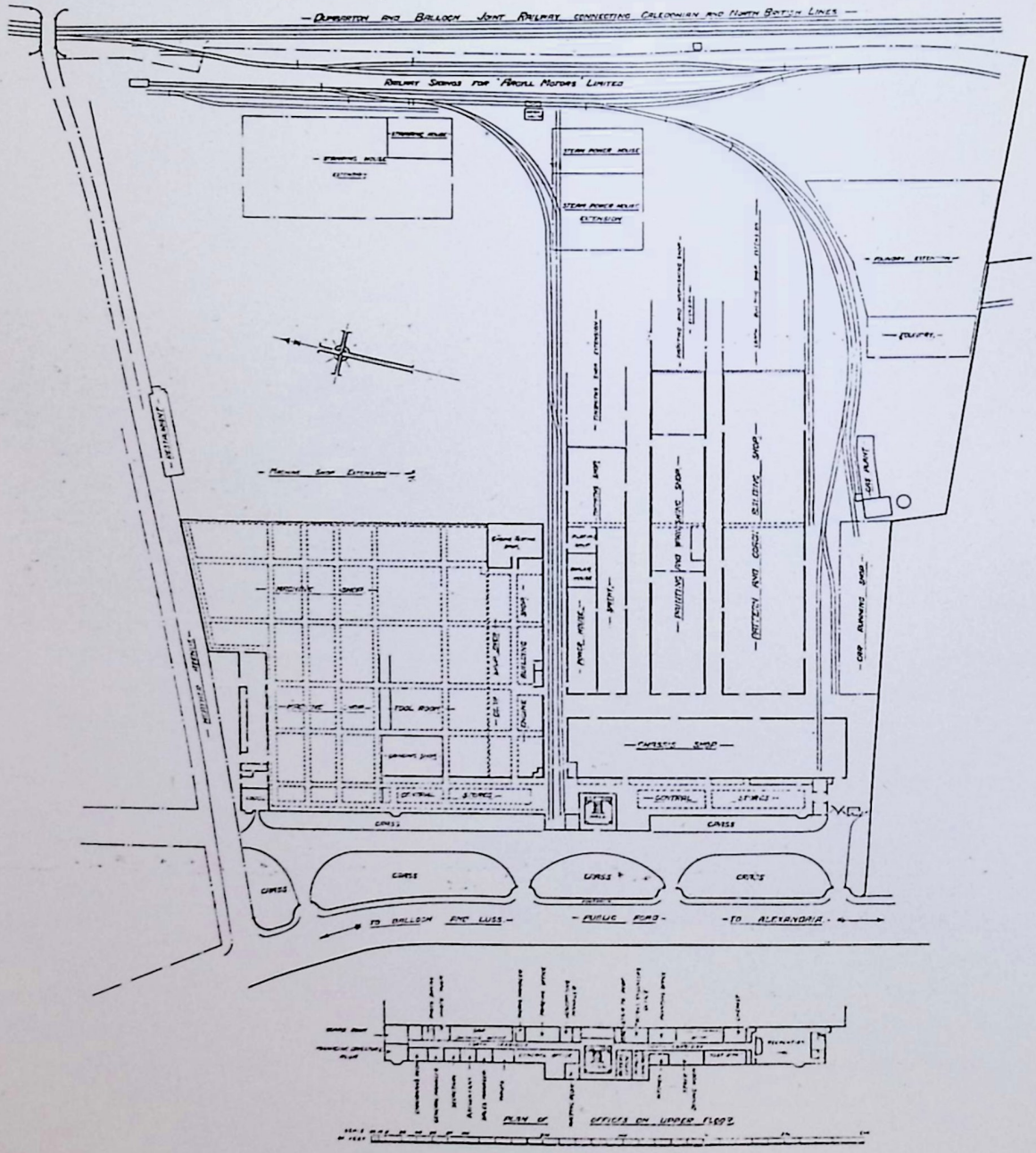
This is the only upstairs flat in the Works, extending, as it does, over that portion of the ground floor given up to the engine building. All the other manufacturing shops being on the ground floor.

Passing downstairs, and out of the machine shop, and crossing the passage up which the locomotive takes trucks of raw material to the stores, we find ourselves at the Power House. Here are installed seven 4-cylinder vertical type gas engines, coupled to direct current generators which supply electricity for lighting, and, where necessary, driving machinery, in the various shops.

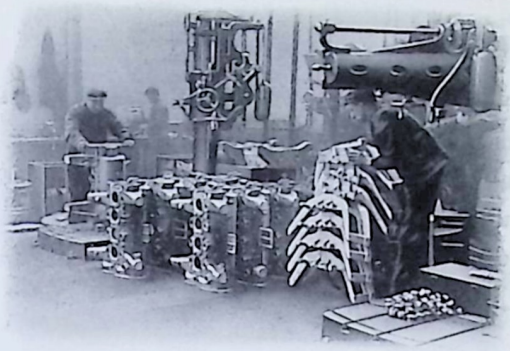
View in Machine Shop.

Beyond the Power House are two Babcock & Wilcox boilers, supplying steam for heating purposes in the various shops throughout the works.

In the same block as the Power House and Boiler House, but separated by a brick wall, is the Smithy, this having, in its peculiar way, its own claims for attention. All the smiths' fires are fitted with smoke exhausting hoods, and, by this means, the atmosphere is kept comparatively clear.



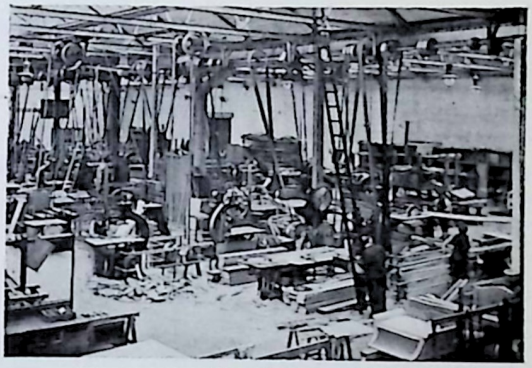

**Plan of the Works.**



View in Machine Shop.

Further down this building is the Case-Hardening Department, and, at the end, the Tinsmiths', Brazing, Buffing, Plating, and Sheet Metal Departments.

The building in which the bodies are painted, upholstered, and varnished, measures 422 feet in length by 65 feet in width and 20 feet in height at the eaves, rising to 33 feet at the peak of the roof. The bodies are brought from the coachbuilding shop next door, are mounted on special stands, and are treated to between twenty and thirty coats of paint. To an outsider the work devoted to the painting of the bodies may seem a waste of time and material, but it is only by repeated painting, sandpapering, stoning, and repainting that the fine, hard, finished surface so noticeable on Argyll cars can be obtained. The bodies, having been painted, are passed into the Upholstering Department, where the leather squabs are put on and stuffed with horse hair, the body afterwards being sent to be varnished. The varnishing room is the only department of the factory which visitors are not invited to enter, the obvious reason for the restriction being the necessity of limiting traffic of all kinds in order to keep out dust; the cars, in all their shining finish, can be comfortably inspected through the glass screen which separates the varnishing sanctum from the upholstery department.



Wood Working Machines in Coach Building Shop.

View in Grinding Shop.

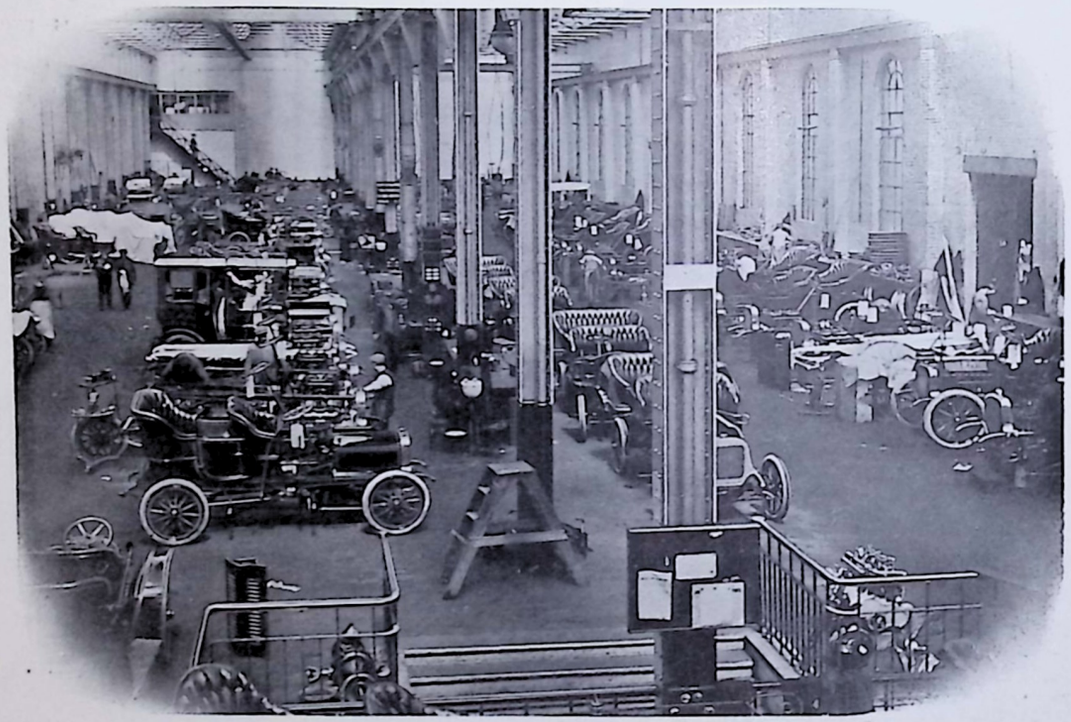
The Coachbuilding Department is the same length as the combined painting, upholstery, and varnishing departments, but it is 35 feet wider, the roof being divided into two spans of 50 feet each. All the wood working machines, which are electrically driven from motors erected on the roof girders, are placed down the middle of the top portion of the shop.

Just inside the door, on the right, is the wheel building section, whilst the pattern-

makers are to the left, the bodymakers filling up the remainder of the floor space, which is sufficient to allow of a hundred bodies being built at one time.

The basement at the east end measures 200 by 100 feet, and is used as pattern and wood store, lavatories, etc.

Anyone who remembers the extraordinary collection of curiosities which made up the memorable "procession" of motors from London to Brighton, over ten years ago, will readily admit that the advance in motor car design in the brief intervening period



View of Finishing Shop.

has been little less than marvellous. Great Britain, as a matter of fact, had long been pre-eminent in coachbuilding, and can bring resources to bear on the motor car trade which are unrivalled. Her Continental rivals, thanks to our Legislature, got a long start, but they have, of late years, been losing ground hand over hand, and the Argyll coach-building is second to none. Not only in the graceful and elegant lines of their standard designs and in beauty of finish do they please the eye of the critical, but stand equally high for excellence of material and workmanship. Anyone visiting the Argyll coach works will see clearly enough, if he has any knowledge of the trade, that the firm maintain all its fine traditions, and are as notable "coachbuilders" as they are engineers.

Though sheet metal is now largely employed instead of wood in the building of bodies, the great aim is altogether unaffected by the material which is used; and the comfort and even luxury of an Argyll car is on a par with the best creations of the modern coach shop.

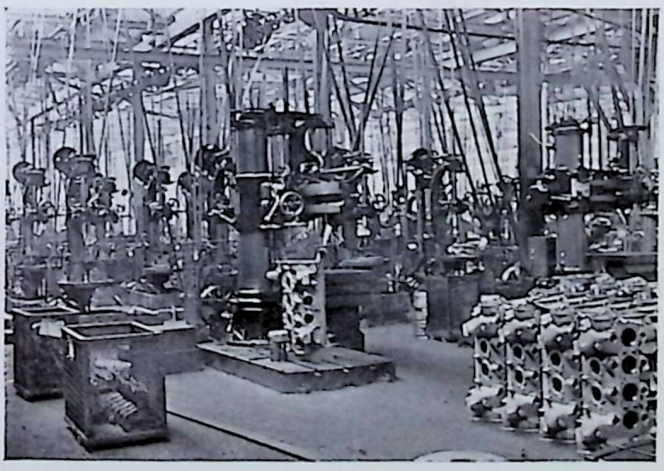
The Chassis Shop, or erecting department, is in some ways the most noteworthy section of the establishment. Constructionally it is highest in the roof, is equipped with a couple of electric cranes, and has a railway siding of its own which allows of cars being loaded indoors into trucks and despatched direct to any quarter. It measures 390 feet by 80 feet.

View in Grinding Shop.

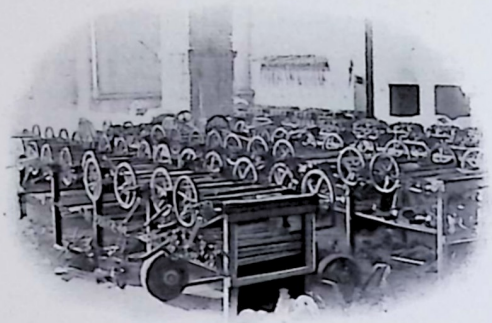
The electric cranes already mentioned can lift a chassis or a complete car and transport it from one end of the shop to the other. The engines, back axles, and gear boxes having been tested independently are returned to the stores, and from the stores all the parts necessary to form a complete chassis are delivered to the erecting shop where the various parts are put together. Here, wheels are fitted and special testing bodies attached, and the chassis is sent out on its road tests. These having been satisfactorily concluded, the chassis is painted and the finished body put on, after which the car is ready for despatch.

In this shop all types of chassis can be seen in all stages of completion, and much useful information may be gleaned.

One of the most important departments is the Store. It extends a distance of 540 feet underneath the office buildings, and contains thousands of pounds worth of iron, steel, aluminium, brass, india-rubber, glass, etc. Here may be seen huge bars and tubes of steel, brass, and phosphor bronze; hundreds of pneumatic tyres; large quantities of accumulators, lamps, and various other fittings that are not usually made by car manufacturers. The intelligent



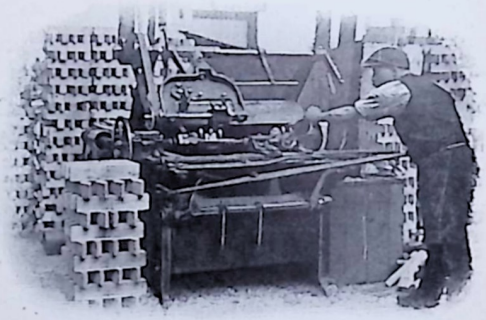
View in Machine Shop.



Stock of Steering Pillars used for one week's output of Argyll Cars from Alexandria.

handling of the large and constantly varying stock of miscellaneous articles absorbs the energies of a large clerical staff, and so perfect is the system of checking that the state of the supplies of any article can be given at a moment's notice.

The Gas Plant is a very important part of the equipment of the works. It produces the gas not only for the engines driving the machinery in the vast machine shop, but also for the engines in the power house, which generate all the electric light and power used throughout the works. The present installation consists of eight units of 200 H.P. maximum capacity each. Anthracite coal is used. It is elevated by means of a bucket elevator, and is filled into hoppers on the top of the producers by hand. Air and exhaust steam from the blowers and steam engine are forced into the producer at the bottom. From the producer the gas is taken by overhead pipes to the hydraulic box, which forms a seal, and then through the tar well into the condenser. From the condenser it passes through coke and sawdust scrubbers into the big gas bell, which keeps the maximum supply always ready for use at the engines.

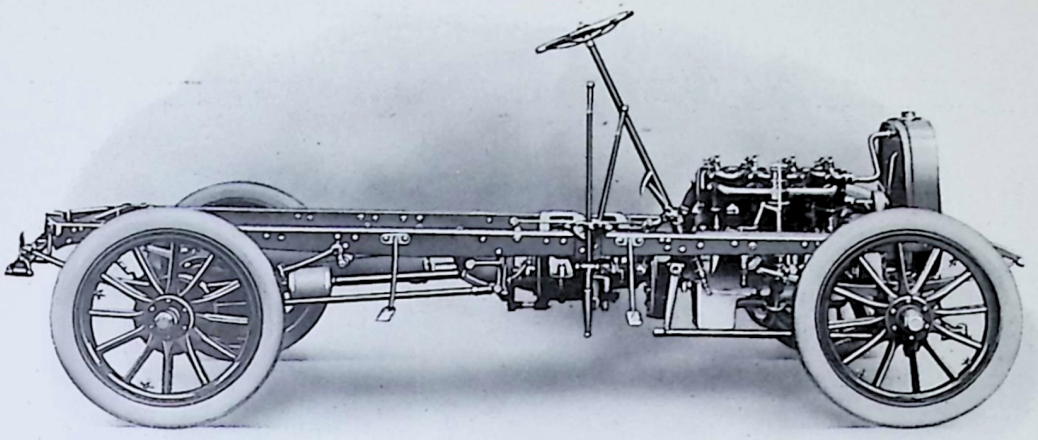


Turning Spokes for Argyll Road Wheels in the Factory at Alexandria.

The foregoing description gives a very poor impression of the extent of the Factory to which the Argyll car owes its existence. Not even the photographs can give anything like an adequate idea of the various departments.

Stock of Engines in Stores.

A cordial invitation is extended to all sufficiently interested to pay a visit to the Factory; on such a visit all departments can be inspected, and a proper idea arrived at of the wonderful resources of the Factory devoted solely to the manufacture of Argyll cars.



14-16 H.P. Argyll Chassis—Inlet Side.

# The Argyll Car

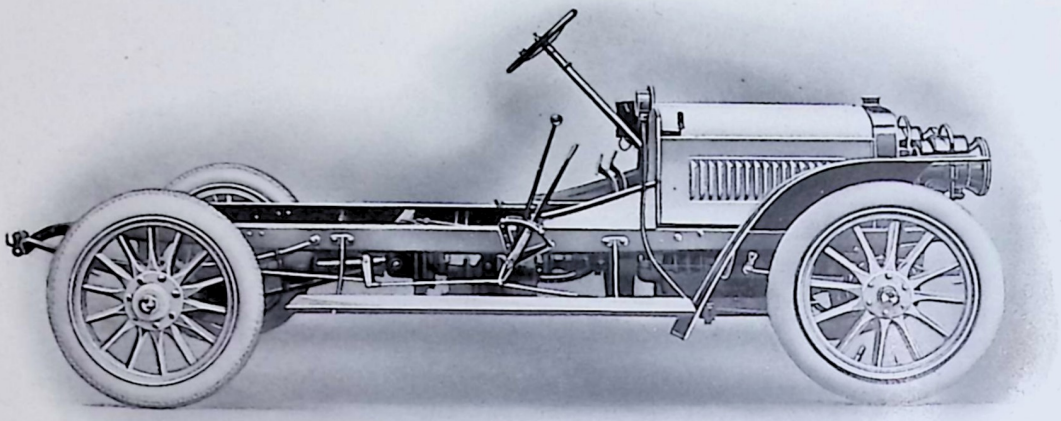
## How it is Constructed, Maintained, and Driven.

THE Argyll car, as almost every motorist knows, is manufactured exclusively at the enormous new factory at Alexandria, which is situated within one mile of the banks of the famous Loch Lomond, the factory possessing the exceptional advantage of having been designed, built, and specially equipped for the manufacture of high-class motor cars on the most scientific and up-to-date principles, in competition with all other manufacturers the world over.

All models of the Argyll cars are manufactured in large quantities, a fortunate circumstance which enables a special system of standardisation, and a very minute inspection of the various component parts to be observed in the whole of the manufacture. This applies from the larger and more important parts down to the smallest details, contributing in two ways to the benefit of the purchaser:—

*Firstly.*—It ensures an absolute interchangeability of parts.

*Secondly.*—It enables the car to be produced and sold to the public at a price which, for value, compares favourably with any other car, either British, European, or American, the customer thereby deriving the direct benefit of the magnificent special plant installed at the factory.



**40 H.P. Argyll Chassis.**

Another point in favour of the Argyll car is that the whole of the coachbuilding is also carried out at the new works, in what are freely admitted to be the finest coachbuilding, painting, upholstering, and varnishing shops at present in existence. The makers, therefore, have facilities for testing the cars both before and after the fitting of the bodies, a point of very great importance to the user. The photographs of the works on previous pages will have conveyed to the reader some idea of their completeness.

As to dimensions, these will probably be better understood when it is stated that in the chassis-building shop accommodation is provided for the erection of 200 chassis simultaneously, the remainder of the works being throughout similarly proportioned.

## THE ARGYLL MODELS.

The Argyll cars are at present manufactured in six separate models:—

1. 12-16 H.P. four-cylinder car with Aster engine.
2. 14-16 H.P. (Standard Model) four-cylinder car with Argyll engine.
3. 14-16 H.P. *(Model-de-luxe)* four-cylinder car with Argyll engine.
4. 16-20 H.P. four-cylinder car with Aster engine.
5. 26-30 H.P. four-cylinder car with Aster engine.
6. 40 H.P. four-cylinder car with Argyll engine.

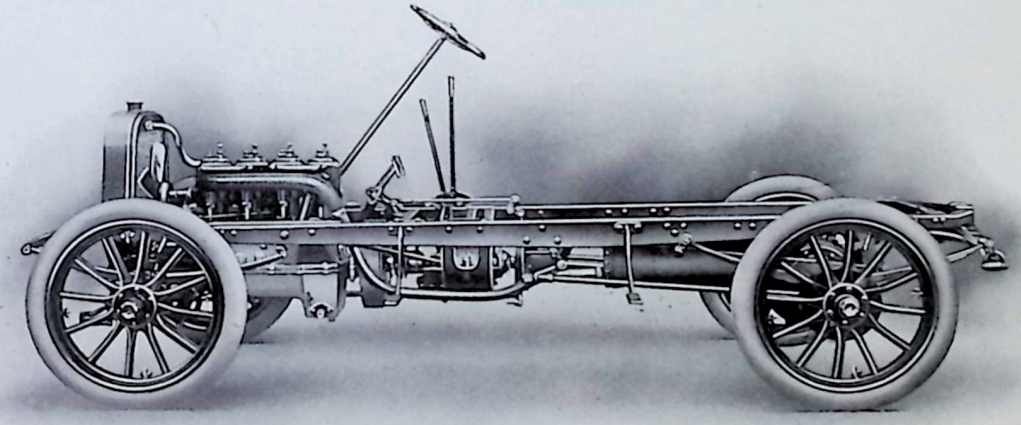
The general appearance and system of construction in all the models is similar throughout, and the general description of one will suffice for all with the exception of the 40 H.P., which possesses a number of quite distinct features.

It is proposed to deal specially with the 14-16 H.P. *Model-de-luxe* and the 40 H.P. chassis throughout this article. The reader will, therefore, understand that the description covers the whole of the different models manufactured by the Argyll Company.

In the 14-16 H.P. the frame is of pressed steel of an inverted U section, securely braced by cross members, the front one forming a cradle, supporting the radiator, which forms a distinguishing feature of the car, and enables it to be readily recognised.

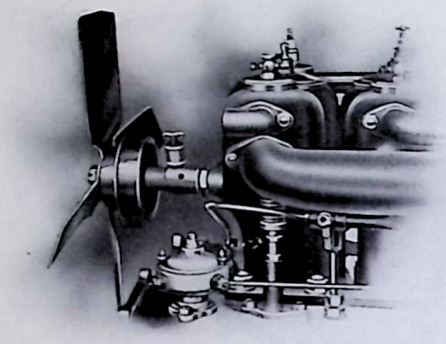
The radiator in its present state of perfection is not a part of the car which requires much attention. The user should, however, satisfy himself from time to time that the water is circulating properly, and that there is no obstruction in any of the pipes or any part of the circulating system. It is advisable, say once every three or four weeks, to run off the whole of the water in the system and refill with fresh water. In doing this the engine should be kept going whilst running off the water, which by this means is kept in circulation all the time, and any sediment which may have accumulated has an opportunity of being discharged. Care should, of course, be taken that the engine is not run absolutely without water: this can be avoided by commencing to pour in the fresh water before the whole of the old is discharged.

In the 40 H.P. the frame is of pressed steel, but of a channel section. A type of radiator similar to that used on the 14-16 H.P. model is fitted, but, of course, the cooling surface and general dimensions are larger in proportion.



**14-16 H.P. Argyll Chassis—Exhaust Side.**

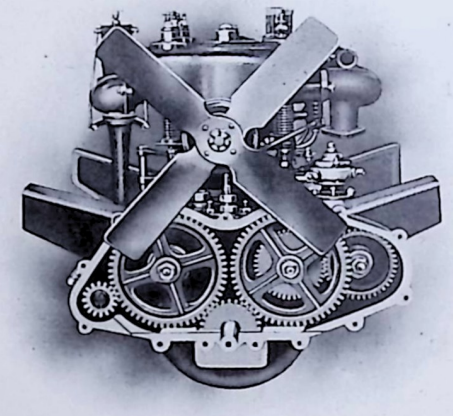
## AN EFFICIENT FAN.



View of 14-16 H.P. Engine, showing Fan.

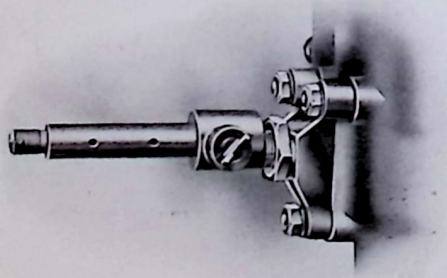
Immediately behind the radiator is situated the fan, which is of similar construction on all models, and it can be truthfully claimed that there is not a more efficient or better designed fan in existence.

Means are provided for an instantaneous adjustment of the tension on the belt driving the fan, the eccentric shown in the accompanying photograph fulfilling this purpose. The fan is driven by a flat belt, which is found to give much better results than either a round or any specially shaped belt. It has the additional advantage that, should the user be so unfortunate as to have a belt break when on tour, a new one can be very easily obtained—a remark which does not apply when any special type is used. In connection with the fan, two points should be observed:—



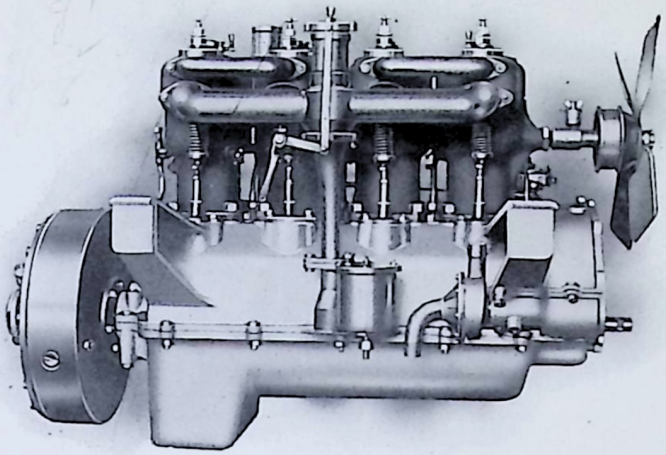
View of 14-16 H.P. Engine, with Cover removed to show Timing Gear.

1. That a plentiful supply of grease is kept in the lubricator provided for the purpose, and which should be screwed down, say, once every 100 miles of running.



View showing Eccentric Spindle by which Fan Belt is adjusted.

2. That the belt should be kept at such a degree of tightness that when getting hold of one of the fan blades it is scarcely possible to move it with any ordinary pressure. By this means efficient cooling is assured.

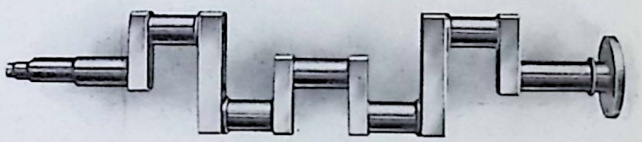


Inlet Side of 14-16 H.P. Argyll Engine.

## THE ENGINE.

Dealing first with the 14-16 H.P. type, this is manufactured throughout at Alexandria. It has four cylinders, all cast separately, with inlet and exhaust valves situated on opposite sides of the cylinders, all mechanically operated and interchangeable, and the arrangement of inlet and exhaust pipes, etc., is such as to afford the greatest possible accessibility to the valves.

The crank shaft is made of special high-grade nickel steel, and has a bearing between each crank pin. All the bearings throughout the engine are of ample dimensions, and lined with a special metal which reduces friction to a minimum, and is infinitely more durable than the ordinary phosphor bronze bearings used by so many makers of even the highest priced cars.



Crank Shaft of 40 H.P. Argyll Engine.

All revolving and reciprocating parts of the engine are accurately balanced, which enables the engine to run at a very high speed when required, and, moreover, contributes in no small degree to its great efficiency.

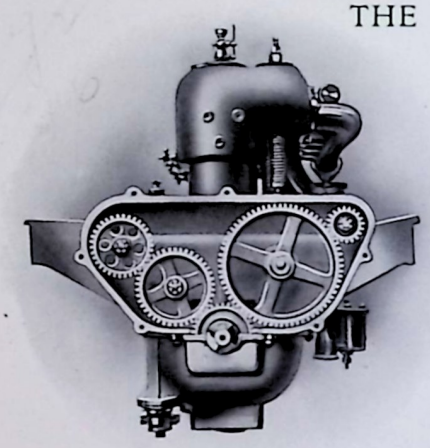
Crank Shaft as used on 14-16, 16-20, and 26-30 H.P. Models.

The two-to-one gear is situated at the front of the engine, and on the 12-16 H.P., 14-16 H.P., and 40 H.P. models is entirely enclosed in a dust and grease-tight case. On other models the wheels are protected by cast aluminium shields, which can be detached for any inspection when required.

The 14-16 H.P. engine has now been made for three seasons in succession. A tremendous number of them have been turned out, and it is claimed that having had

such experience with this particular engine, and having devoted so much attention to it, that it is as near perfection as is humanly possible of achievement, the many testimonials received from users all over the world supporting this statement.

## THE 40 H.P. ENGINE.



**Front View of 40 H.P. Engine with Cover removed to show the Two-to-One Gear.**

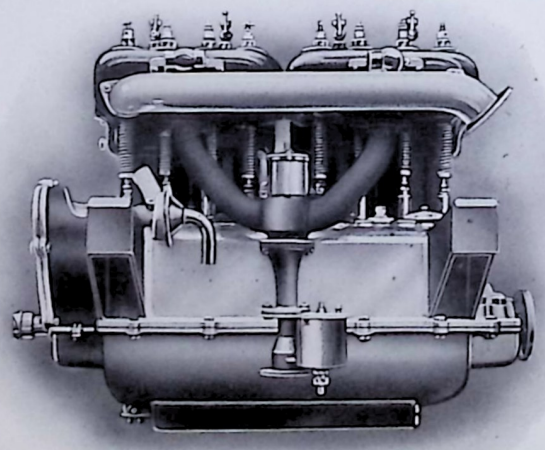
Turning now to the 40 H.P. engine, this is of an entirely new design, and is arranged with the cylinders cast in pairs, the whole of the valves being placed on one side, and, by a very neat design, the arrangement of the induction and exhaust pipes is such that perfectly free access is given to all the valves, a point very often overlooked by engine designers.

The crank shaft is of an exceptionally substantial design, and of special high-grade nickel steel. It has three main bearings, and all bearings throughout are of very ample dimensions, and lined with special metal similar to that described in connection with the 14-16 H.P. model.

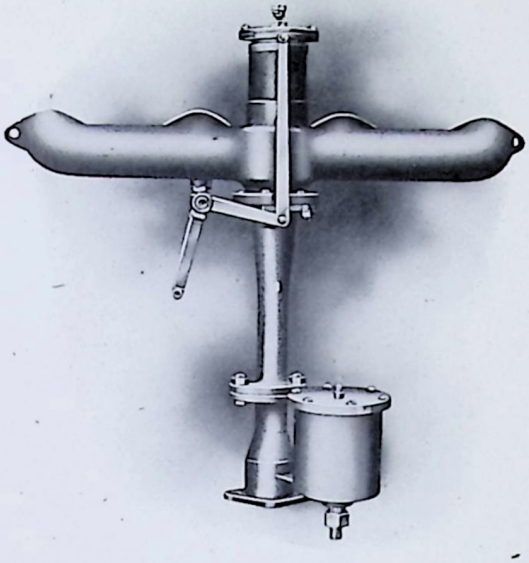
When designing this engine, simplicity, combined with efficiency and reliability, have been the principal objects in view, and all are earnestly invited to take the earliest opportunity of making a thorough examination of it. Any one of the Argyll Agents throughout the country will be only too pleased to afford such facilities.

It is claimed that this engine compares favourably with that of any other maker in the world.

Exceptionally good results have been obtained with it, and a very large demand during this season is anticipated.



**Valve Side of 40 H.P. Argyll Engine**



View of Carburettor and Throttle.

## CARBURETTOR AND THROTTLE VALVE.

After nearly a year's experimenting, a design has been evolved which combines the carburettor and throttle.

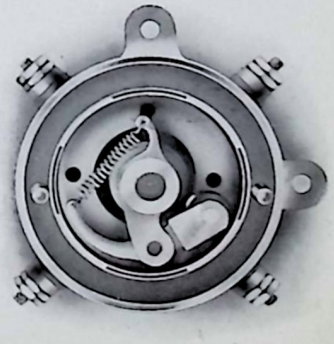
The carburretor is absolutely automatic, and, in addition, has means whereby fresh air may be admitted to the cylinders. Admitting fresh air to the cylinders allows the engine to be used with special advantage as a brake; there being no severe vacuum, and a consequent freedom from trouble with carbon deposit formed from oil sucked into the cylinders.

The throttle valve is specially designed to give a very sensitive control of the engine, enabling it to be run very slowly when required—in fact, at as low a speed as 100 revolutions a minute. It is advisable to run off almost a cupful of petrol from the carburettor end of the petrol pipe about once a fortnight, thus clearing away any water that may have gathered. The petrol in the carburettor should also be allowed to run off. The carburettor should be taken down and thoroughly cleaned out, say, every three months.

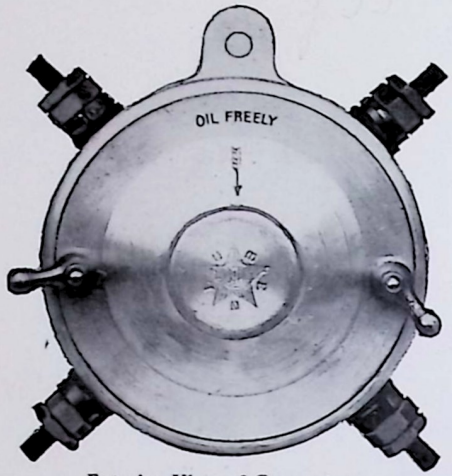
## THE IGNITION SYSTEM.

On Argyll cars the ignition is extremely simple and reliable, the standard pattern consisting of battery, commutator, induction coil, and plugs. The battery is situated immediately under the driver's seat, with a switch controlling it placed upon the dashboard, within easy reach of the driver. The commutator, an extremely important part of the car, is placed in a very accessible position, and so arranged that it will hold a considerable quantity of oil, which is necessary to ensure satisfactory running.

An inspection of the commutator should be made every morning, and, if required, a fresh supply of a very thin mineral oil added. If this instruction is observed



Commutator with Lid removed to show Roller and Contact Pieces.



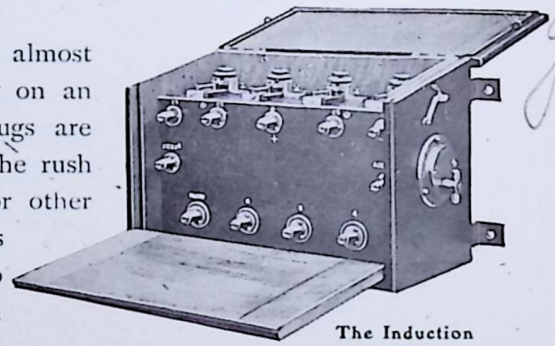

Exterior View of Commutator.

the user will find a gratifying freedom from ignition troubles. From the commutator the wires are led to the coil on the dashboard, from which the high tension wires are run direct to the plugs in the various cylinders.

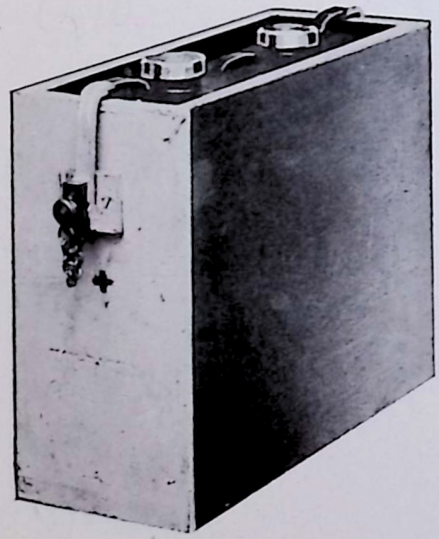
A word or two as to the care of the battery will, no doubt, be useful. Do not discharge it below 1·9 volts; it is possible to run on less than this, but it is most injurious, and shortens its life. Examine it frequently to ascertain whether the top of the plate is well covered with the electrolyte; if the top of the plate is visible, add distilled water to the acid, to bring it up to the necessary level.

## NO DIRTY PLUGS.

In passing, it should be mentioned that it is almost an unknown thing to have a sooty or foul plug on an Argyll car, by reason of the fact that the plugs are placed immediately over the inlet valve, where the rush of the incoming gases sweeps away any soot or other deposit which might otherwise accumulate. This remark also applies when both magneto and ordinary ignition are fitted, as a special attachment is made to accommodate the two separate plugs over the inlet valve.



The Induction Coil.



The Battery.

An instance of the forethought of the designers is also shown by the providing of a shelf cast in one piece with the upper half of the crank case and accurately machined, ready to accommodate a magneto if the user should desire to have it fitted, thereby doing away with any unsightly attachment, which would otherwise present the appearance of an afterthought.

Close to the carburettor is placed the water circulating pump, which is of the centrifugal type,

gear driven, and designed with a capacity well over its work, with the result that pump troubles are practically unknown on the Argyll car. At the other end of the crank shaft a suitable flywheel is attached, in the interior of which the clutch is fitted.

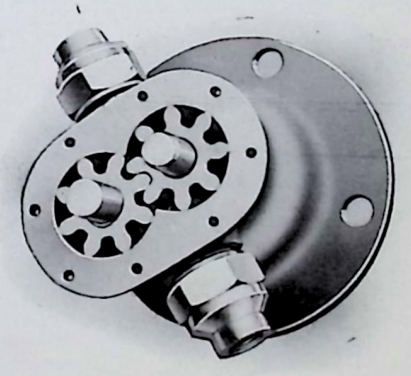
The Argyll Pump shown complete on the left; in its various parts on the right.

## LUBRICATION OF THE ENGINE.

The lubricator of the pressure feed type, which has given such excellent results in the past, is being retained in use; this lubricator is placed on the dashboard in plain sight of the driver, the supply of oil to the various bearings being capable of instant adjustment to suit varying circumstances, such as difference in the density of the oil that may be in use, etc.

It is difficult to lay down any hard-and-fast rule as to the amount of oil required by any particular engine, but, as an average, it may be safely assumed that for four-cylinder engines four to five drops per minute will be found to give ample lubrication.

On the 14-16 H.P. *Model-de-luxe* and 40 H.P. model, however, both of which are made throughout at Alexandria, a mechanical forced feed lubrication has been adopted, the pressure for this being obtained from the small pump placed on the rear end of the cam shaft in the 14-16 H.P. and on the lower end of the commutator spindle on the 40 H.P., the oil being distributed thereby to the various bearings of the engine; discs are fitted on to the crank shaft for throwing oil on to the cylinder walls, and in that manner lubricating the pistons.



Oil Pump as used on 14-16 H.P. Model.

This system has been in use for a considerable time, and has been found to

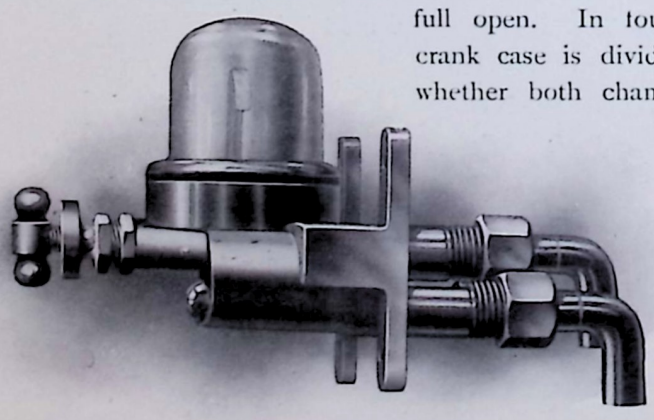
give extremely satisfactory results; a sight feed glass on the dashboard enables the driver to ascertain immediately whether the pump is working satisfactorily or not, this arrangement having been adopted in preference to a pressure gauge, the latter being unreliable and an almost constant source of trouble.

Lubrication is one of the most important points in connection with the running of the engine, and neglect on this score may result in very serious consequences—most probably in a total breakdown of the engine. Quite ninety per cent. of engine failures are directly attributable to want of lubrication. Ordinary gas engine oil should be entirely avoided, being quite unsuitable for high-speed engines, oil of a very high flash-point and free from deposit being used.

The rate of feed for the 14-16 H.P. and 40 H.P. engines, which have a mechanical pressure lubrication, will be found accurately adjusted on receipt of the car from the works. If, however, at any time need is found for a re-adjustment, this can be effected by means of a small bye-pass which is fixed on the distributing pipe.

It should be remembered that over-lubrication has grave disadvantages, such as pre-ignition, this being caused by the carbon deposit on the top of the pistons exploding the mixture before the end of the stroke. A severe strain is, in consequence, put on the moving parts, and "knocking" will take place, a condition which should be avoided at all costs.

With the pressure feed type of lubricator, when the proper rate of feed has been determined, it is a very safe guide to oil the engine every morning by the hand pump until there is just a faint trace of smoke at the silencer with throttle valve full open. In four-cylinder engines, where the crank case is divided, it is necessary to ascertain whether both chambers have sufficient oil. This should be done by cutting out the front and then the back pair of cylinders at the coil, and noticing the condition of the exhaust in each case.



**Oil Sight Feed as fitted on Dashboard.**

After about 800 miles running it is advisable to remove the plugs and wash the engine out thoroughly

by injecting a wineglassful of paraffin into each cylinder, allowing this to soak past the piston rings, afterwards turning the engine sharply by hand for a few minutes. After allowing it to stand for ten minutes more, remove the plugs from bottom of crank case and allow all the oil and paraffin to drain off.

**Pistons:—One with Rings in position, and one with Rings removed.**

Before starting the engine again, the user must bear in mind the fact that a new supply of oil must be placed in the crank case. This is done through holes provided for this purpose in the top of the crank case.

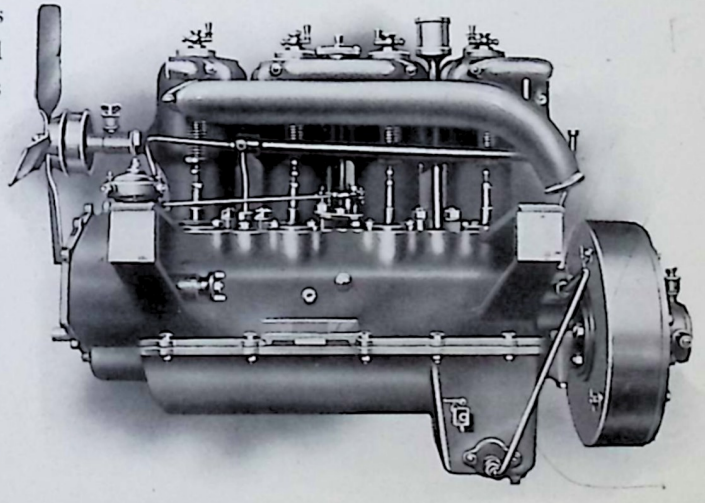
The engine starts more easily on a rich mixture, and this can be obtained by slightly flooding the carburettor.

One other point worthy of attention is the fact that the exhaust pipe is led away from the engine with gentle curves, and has no sharp corners, as found on some cars. This fact, though apparently insignificant, is one more item tending towards efficiency, as, in consequence, the least possible resistance is offered to the passage of the outgoing gases.

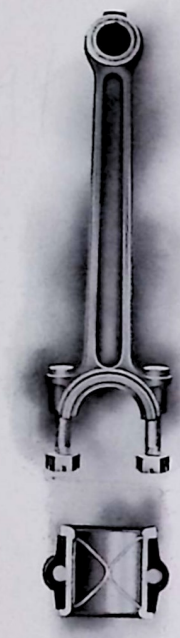
The exhaust pipe terminates in a suitable exhaust box, placed lengthways with the car and practically out of sight, the final outlet for the gases being in a horizontal direction at the rear of the car, and so arranged that it is non-dust-raising.

## SIMPLICITY OF MECHANISM.

No very particular instructions are necessary as to the care and handling of the engine, which is arranged to perform all its functions automatically. In connection with engines having pressure feed lubrication, a supply of grease should be injected about once a month into the two-to-one gear case through the plug hole provided for the purpose; no grease, however, must be put in the 14-16 H.P or the 40 H.P. engines having forced lubrication.



**Exhaust Side of 14-16 H.P. Argyll Engine.**



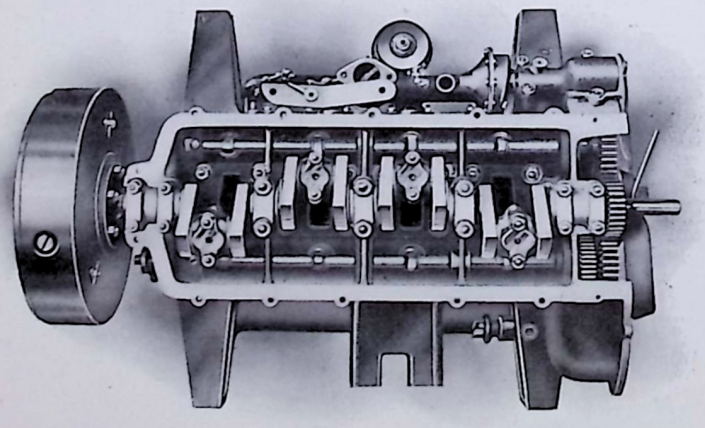
Connecting Rod with bottom half of Bearing removed.

Granted that these conditions are observed, and that the engine is at no time run with the ignition so far advanced as to cause knocking, the user need have no fear of trouble, but, should this unexpectedly occur, the hints here appended will, doubtless, prove useful.

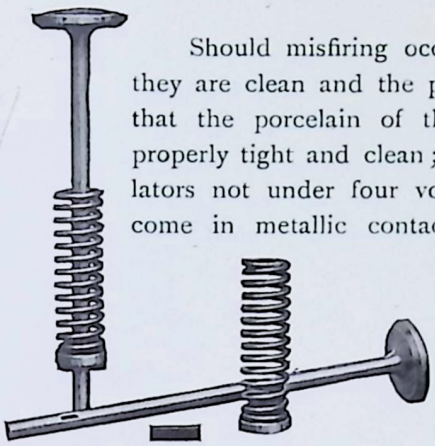
## LOSS OF POWER.

Should there be a loss of power in the engine, the following points should be examined for the cause :—Leakage at either the exhaust or inlet valves, sparking plugs, or piston rings; weak accumulators; dirty sparking plug; imperfect contact at the contact breaker, caused by a weak spring in the contact arm, or by carbonised oil on the fibre disc and contact pieces, by excessive wear on the contact pieces, or burning of the platinums on the trembler of the induction coil.

The latter may be cleaned by removing the screw and trembler blade and dressing up the contact pieces perfectly square to ensure good contact when replaced. This may best be done with a very smooth file, *such as used by watchmakers.* After replacing the parts removed, put on the switch, and the contact breaker being in position to close the circuit, then adjust the screw to the blade till the most rapid vibration of the trembler is attained, fixing the screw in this position by means of the locking nut. The adjustment should be with as light a contact as possible—a heavy contact at this screw wastes current and causes burning at the contact breaker. When making this adjustment, it is most important that the sparking plug wire should be connected to the plug and the plug to the cylinder, for, should this be neglected, there is every probability of the coil being injured by burning of the insulation.



View of 14-16 H.P. Engine from underneath with lower half of Crank Case removed to show Crank Shaft, Connecting Rods, etc



Valves and Springs.

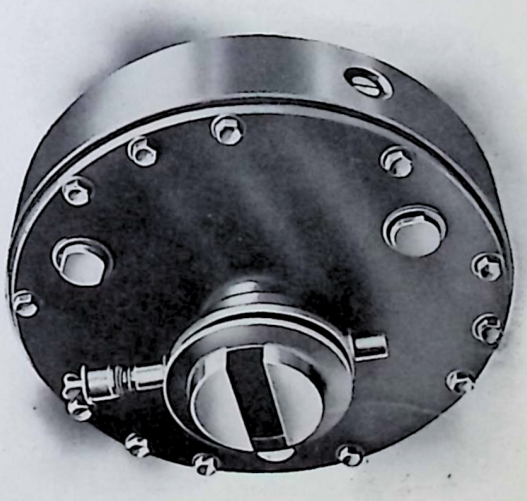
Should misfiring occur, examine the sparking plug points to see whether they are clean and the proper distance apart (about $\frac{1}{32}$ part of an inch); see that the porcelain of the plug is not broken; all terminals of the wiring properly tight and clean; contact breaker clean and properly adjusted; accumulators not under four volts; and all parts of the wiring which are likely to come in metallic contact with the framework properly insulated. A most successful method of finding a short circuit is to put the car in the very darkest place obtainable and start the engine, when any leakage in the electric circuit will be easily found, a dull blue flicker showing up brightly in the dark, although quite imperceptible in the light.

## THE CLUTCH.

The type of clutch fitted on all models is a multiple disc clutch, consisting of a number of flat steel plates running in a lubricant (the lubricant being retained inside the clutch by means of a cover securely fixed to the back of the flywheel, making it an oil-tight case). This clutch is found to give excellent results, and enables the car to be started without any jolt or jar, and also permits of the clutch being slipped within reasonable limits when driving in traffic, and thereby, in many instances, obviating a change of gear, which would be otherwise necessary.

It should be most distinctly understood, however, that this property should not be abused, and it is strongly recommended that everyone using a clutch of this description should inspect it, say, every week when in regular use, and, if necessary, add a little more lubricant, which should consist of equal quantities of very light mineral oil (such as used for sewing machines) and paraffin.

This is a little attention which only requires some two or three minutes each time it is performed, and the result obtained is well worth the trouble.



Flat Plate Clutch complete.

There are two plugs situated in

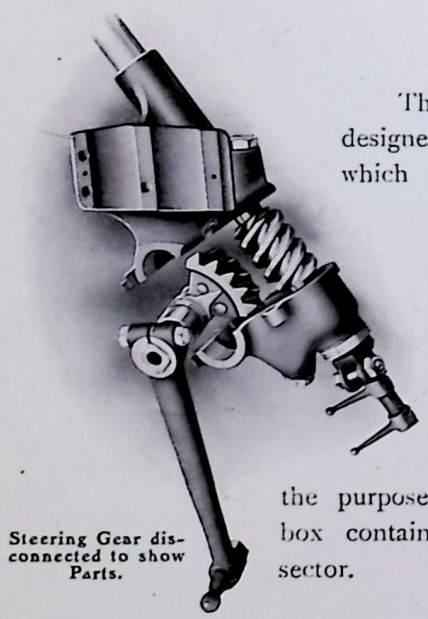
the outer circumference of the fly-wheel and spaced at 90 degrees apart. When making an inspection of the clutch, turn the crank shaft into such a position that one of these plugs is at the top, when the other will, of course, be level with the centre of the crank shaft. Lubricant should be poured in at the upper hole until it runs out at the lower one, when the clutch will be half full of solution, this being its proper condition. The plugs should then be replaced, and great care taken that they are screwed down absolutely tight, as otherwise loss of solution might occur, and damage would be done to the plates if run dry.

Flat Plate Clutch with Cover removed and portion of Pressure Plate shown broken away to expose the Plates.

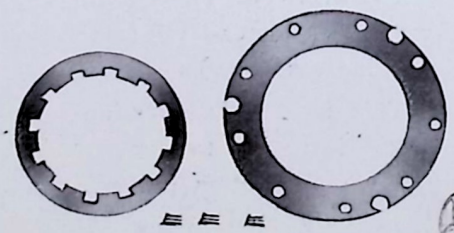
The clutch is operated by means of a pedal placed immediately opposite the left foot of the driver.

## THE STEERING GEAR.

This has received very special attention at the hands of the designer. The steering wheel operates a worm and sector, from which motion is transmitted to the front wheels by means of suitable levers and connecting rods. All parts are case-hardened, and facilities made for very minute adjustment. A supply of grease should from time to time be added through a plug hole provided for the purpose in the top of the box containing the worm and sector.



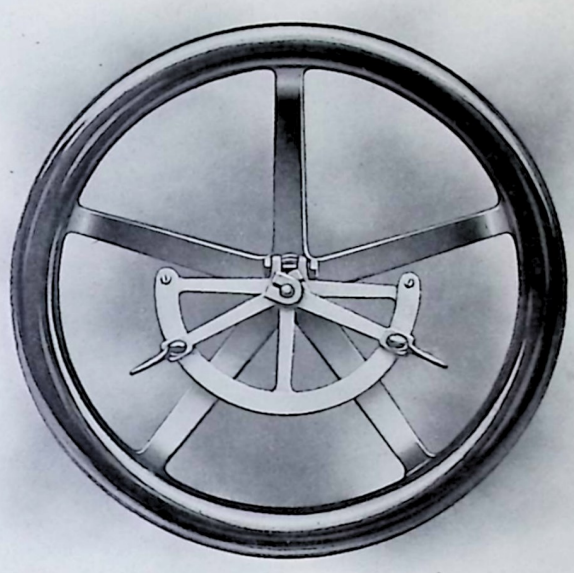
Steering Gear disconnected to show Parts.



Flat Friction Plates of Clutch and Small Springs placed between Outer Plates to disengage them when Clutch Pedal is withdrawn.

## THE SYSTEM OF CONTROL

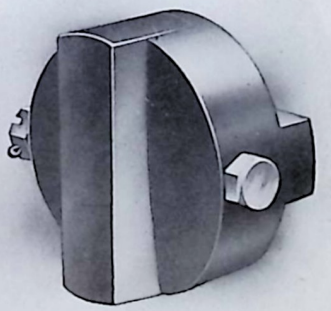
common to all Argyll cars, and a system which is absolutely the simplest in existence, consists of two small levers placed on the top of the steering wheel, one being operated by each hand, the left-hand one controlling the throttle valve already referred to, and the right-hand one, by means of a suitable arrangement of levers, being connected up to the commutator and capable of rotating it through about 90 degrees, thereby altering the time of firing of the gases inside the cylinder to suit varying circumstances; and two pedals, the left-hand one, as already described, operating the clutch, and the right-hand one operating the foot brake, which will be described later. The reader will understand, therefore, that there is a small lever for each hand and a pedal for each foot, a state of affairs designed to suit a human being, and the user is not called upon to operate three or four pedals with two feet and two levers with one hand, as on many cars.



**40 H.P. Argyll Steering Wheel showing arrangement of Ignition and Throttle Control Levers.**



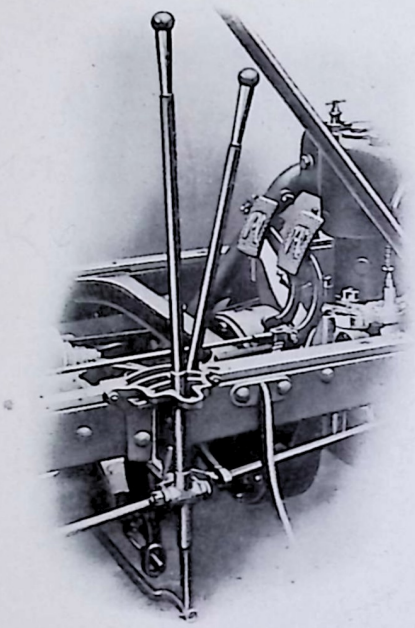
## GEAR BOX.



**Coupling between Clutch and Gear Box.**

The gear box on all models except the 40 H.P. is on exactly the same system, and the description given herewith will, no doubt, enable the reader to easily comprehend its arrangement and extreme simplicity.

The gear is particularly noticeable for its great strength, fewness of parts, and ease of operation. It will also be noticed that both the countershaft and main shaft are very much shorter than the shafts usually employed in other types of gears, a



14-16 H.P. Change Speed Levers.

fact which gives them far greater strength, and tends to prevent any springing of the shafts when at work. This gear also has the unique advantage of having both the second and top speed wheels constantly in mesh, the operation of changing speed being performed by means of dog clutches, and it is possible to change speed at all times without the slightest noise, and in nine cases out of ten without the other occupants of the car being aware that any change has been made.

## WHERE ARGYLLS SCORE.

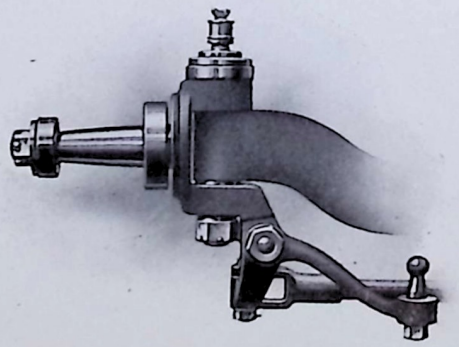
The first speed is the only one in connection with which a sliding gear is used, and on all models it may be taken that for all general purposes this is a gear very seldom required.

Instances of this are always being notified, numbers of users of the various types of Argyll cars writing stating that they have made very long runs without any necessity for changing gear.

From these facts the reader will realise, therefore, that the two speeds in ordinary everyday use have their gear wheels always in mesh, thereby rendering it absolutely the simplest type of gear to operate.

The accompanying photograph gives an illustration of the gear box on the 14-16 H.P. car. As has already been stated, all, with the exception of the 40 H.P., are similar so far as the system is concerned, the only difference lying in the dimensions of the various parts, which, of course, are made stronger on the larger cars.

The jaw clutch A, which is situated outside the gear box and at the front end, is in direct connection with the engine and driven thereby, the friction clutch, already described, acting as an intermediary, and serving to disconnect the power from the gear box when required.

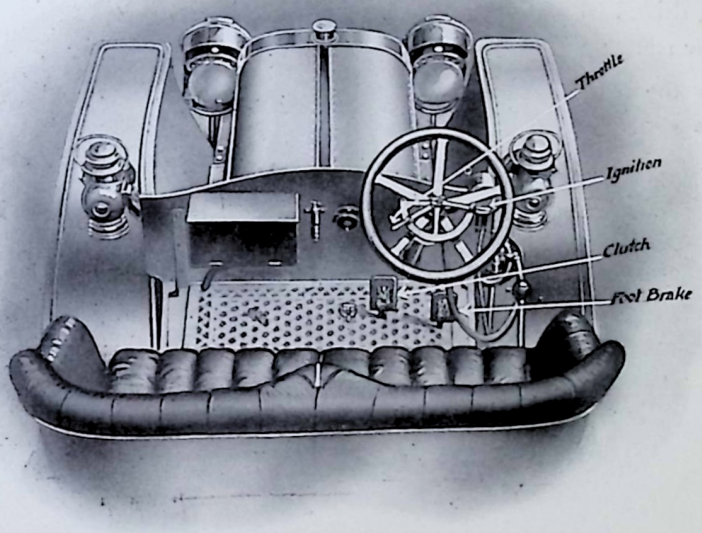


Swivel of 40 H.P. Front Axle.

## RIGIDITY OF FITTINGS.

Rigidly attached to the same shaft as the coupling clutch is the wheel C, inside the gear box. In the lower portion of the illustration will be seen the countershaft running from end to end of the box. This countershaft has rigidly attached to it the countershaft speed wheel F and the second speed wheel R, and these at all times revolve with it.

The centre portion of the countershaft is square, and on it slides the first speed pinion G, the sliding motion being given to it by means of a bell crank lever T, of which, unfortunately, one arm only is shown in the photograph. The invisible end of this lever is connected by means of a suitable rod to the lower end of the speed




**View showing the simplicity of the Control of the Argyll Car.**

lever, by which it is operated. The end in the illustration operates a sliding rod, and has attached to it a fork, which engages with a groove cut in the first speed pinion G, thereby causing it to slide with the fork. The main shaft has rigidly attached to it at its rear end the foot brake drum K, and extends forward as far as the rear side of the wheel C, in the inside of which it has a bearing, and is consequently rigidly supported at each end.

The wheel O is arranged to run loose on this shaft, the portion of the shaft passing through it, of course, being round, but the large wheel Q revolves always with the shaft, this portion of which is square, and the wheel Q is arranged to slide on it.

It will be noticed that the wheels C and O have each a very substantial jaw clutch formed on one side. The wheel Q has corresponding jaw clutches formed on either side.

It should be mentioned that the gear is controlled by two levers, placed outside the chassis, on the right-hand side of the driver. The longer of these levers, called the speed lever, is so arranged that it can slide in a quadrant in any one of three directions from its neutral and vertical position—outward, backward, and forward—this arrangement presenting the enormous advantage of obviating any possibility of the missing of the gears when changing speed either by day or night, as the lever is simply moved as far as possible in any one of the three directions.

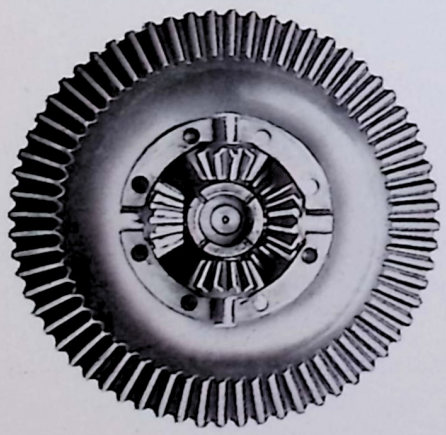
The reverse lever placed on the inner side of the speed lever is in its neutral position when sloping forward, and in its driving position when sloping backward towards the driver. Both levers are held in their required positions by means of spring catches, which are released by depressing the round ball at the top of the levers.

Moving the speed lever outward operates the first speed pinion G through the arrangement already described. Moving it either backward or forward operates the double fork spring lever A, which controls the sliding wheel Q.

## OPERATING THE GEARS.

As shown in the photograph the gear is in the neutral position, and the speed lever, as already mentioned, would then be vertical.

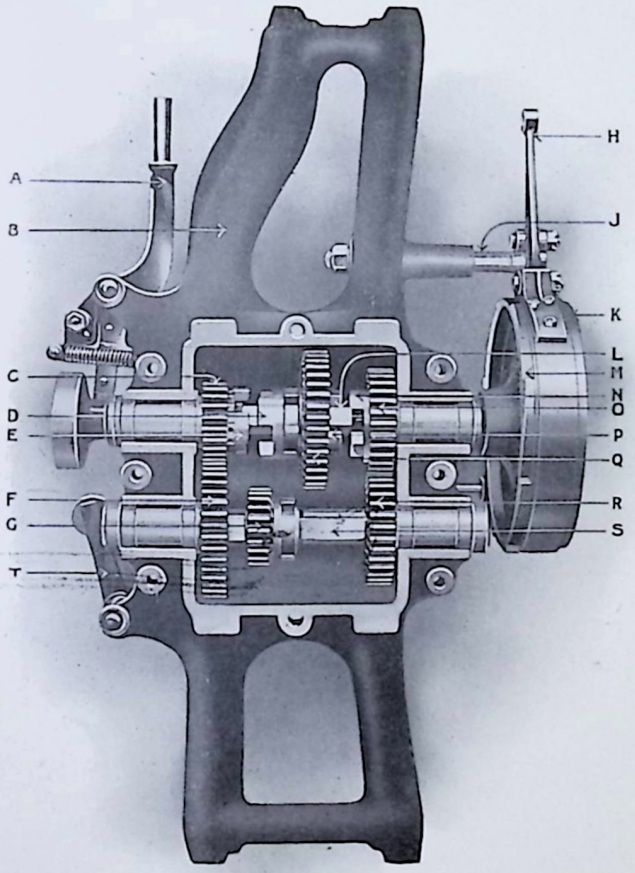
In order to engage the first speed, first with the left foot depress the clutch pedal to its full extent, then quickly move the speed lever outward, when the first speed pinion G will slide along its shaft S, and engage with the wheel Q on the main shaft L; then gently raise the foot, and the clutch will gradually come into operation. The drive will then be as follows:—The wheel C, revolving at the same speed as the engine, and engaging with the wheel F, will drive the countershaft, causing the first speed pinion G to revolve with it; this, in turn, engaging with the wheel Q, causes the main shaft to revolve, the gear ratio under these circumstances being four revolutions of the engine to one revolution of the main shaft.

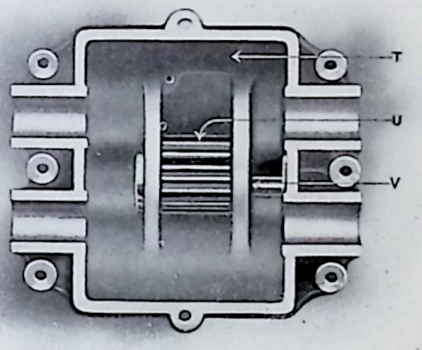


**Large Driving Wheel with Differential Cover removed, showing Differential Gear in detail.**

Assuming now that the car has got well under way, again depress the clutch pedal, move

the lever into its vertical position (which action will, of course, disengage the first speed), and then pull it backward. This operation will cause the wheel Q to slide backwards on the main shaft, and the jaw clutch on it to engage with the clutch on the wheel O. This is the second speed position, and the drive will then be as follows:—The countershaft being driven as before, carries with it the wheel R, which drives the wheel O, which, in turn, through the medium of its jaw clutch, causes wheel Q to revolve, the gear ratio in this instance being two revolutions of the engine to one revolution of the main shaft.



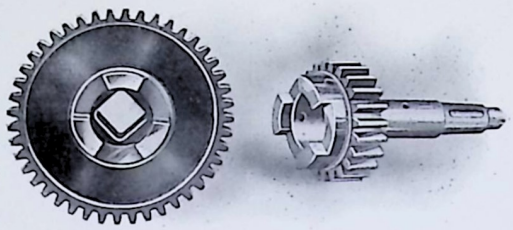




Argyll Three-Speed Gear Box (Govan Patent).

## PUTTING IN THE TOP GEAR.

Again assuming that the car is well under way, and travelling at about twice the speed obtained on the first gear, depress the clutch pedal once more and push the lever quickly from back to front position. This will have the effect of sliding the wheel Q forward on the main shaft and engaging the jaw clutches on the wheels Q

and C. This is the top speed position, and the drive is direct from the wheel C through the wheel Q to the main shaft, which, the reader will readily understand, will then revolve at the same speed as the engine shaft—the countershaft S and the wheel O, in this case, running idle. At least 95 per cent. of the driving on all Argyll cars is carried out with the gear in this position.

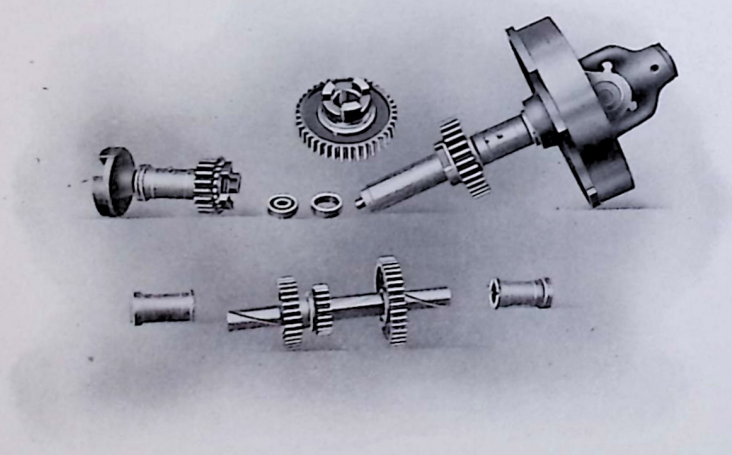


View of two Gear Box Wheels, showing Jaw Clutches.

The user, as he becomes expert in the handling of the car, will acquire the knack of almost unconsciously closing the throttle lever slightly, simultaneously with the depressing of the clutch pedal and moving of the gear lever, thereby keeping the engine speed approximately constant during the changing of the gear.

## HOW TO REVERSE.

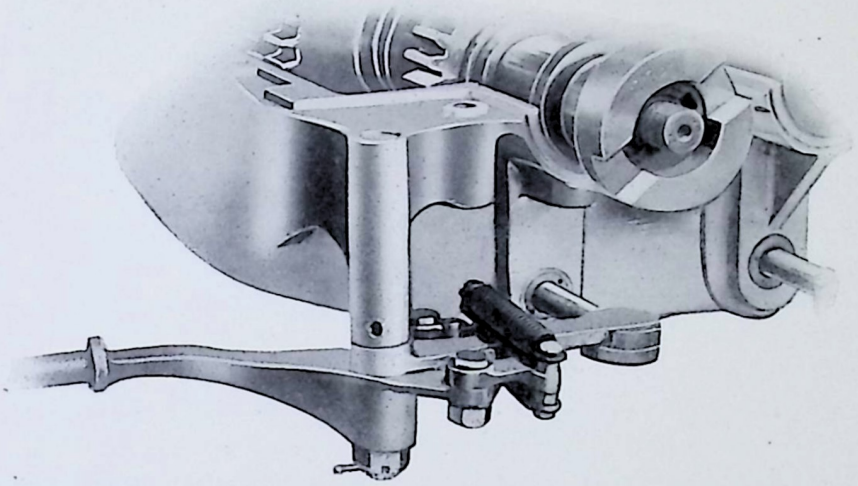
The reverse gear consists of a very broad wheel U, which is fixed in the lid of the gear box. It runs on a short spindle V, having eccentric end bearings, and the system of operation is as follows:—The speed lever is left in the neutral position, the gears then being as shown in the photograph. The clutch pedal is depressed as usual, and the reverse lever drawn backward towards the driver. This has the effect of rocking the spindle carrying the reverse pinion, which, having an eccentric motion, brings the reverse pinion downward into gear with the two wheels G and Q, where it acts as an intermediate wheel between the two, causing the direction of rotation of the wheel Q to be reversed. The gear ratio is exactly the same as in the first speed, viz., four revolutions of the engine shaft to one revolution of the main shaft.



Illustrating the extreme simplicity of the Argyll Gear. All the component parts of the Gear Box, also the Foot Brake Drum and a Universal Joint, are shown in the Photograph.

The description given above applies to the

starting of the car, but the reader will, no doubt, readily understand that the method of changing downwards, which may be necessitated when climbing a steep gradient, is exactly the reverse of that described; after one or two lessons not the slightest difficulty will be found in operating the gear.



**End View of Gear Box to show the Double Spring Lever marked A in Photo. on page 35.**

## FOOT BRAKE AND SPRAG.

Another reference to the illustration will show that the foot brake drum K has a broad, flat surface, and on this the brake acts. The brake is of the band type, being supported from the spindle J and operated by the very simple system of levers illustrated in another photograph in this article. Full provision is made for a very quick adjustment of the brake.

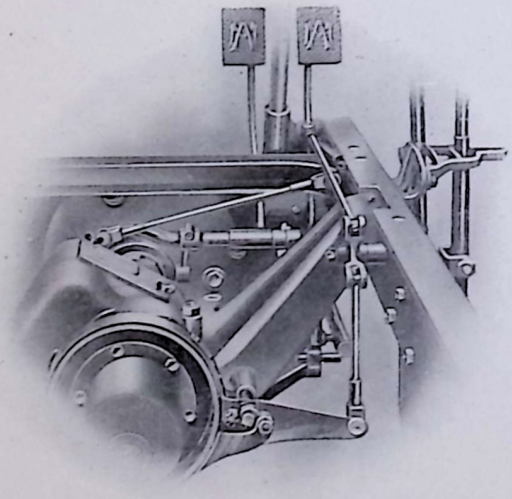
A number of notches M are cut round the circumference of this drum at its forward end, and the sprag, which is controlled by the driver, is arranged to act on these.

## FOUR-SPEED GEAR BOX.

The gear box adopted on the 40 H.P. chassis differs very largely from that already described and used in connection with other models. For the larger-powered car it was deemed advisable to fit a gear box giving four speeds forward

and a reverse, and, having in view the general preference of all car owners to run their car on the direct drive when passing through towns or traffic, so as to thereby run as quietly as possible, it was decided to make the third speed the direct drive, having a geared-up fourth speed for use on open stretches of road or when very high speed is required.

An illustration is given herewith of the 40 H.P. gear box, from which the reader will readily understand the general arrangement. The gears are enclosed in a large aluminium box having arms A, by means of which it is suspended from the main frame of the chassis. The main shaft P and countershaft K are of very ample dimensions; the former is square and has sliding upon it the third speed wheel and clutch C, and first and second speed wheels N and O, these latter being rigidly attached to each other. All these wheels are arranged to slide on the main shaft P, and, by means of suitable rods, levers, etc., marked B, are, at the will of the driver, placed in their respective positions to give the different gear ratios that may be required under varying circumstances. The countershaft is of circular section, and has rigidly attached to it the countershaft speed wheel H, and also the first, second, and fourth speed wheels, respectively T, M, and L. Both the main shaft and countershaft run on ball bearings, these being enclosed in casings G and J, the main shaft having two bearings at each end, the countershaft, which runs under less severe conditions, having one at each end.

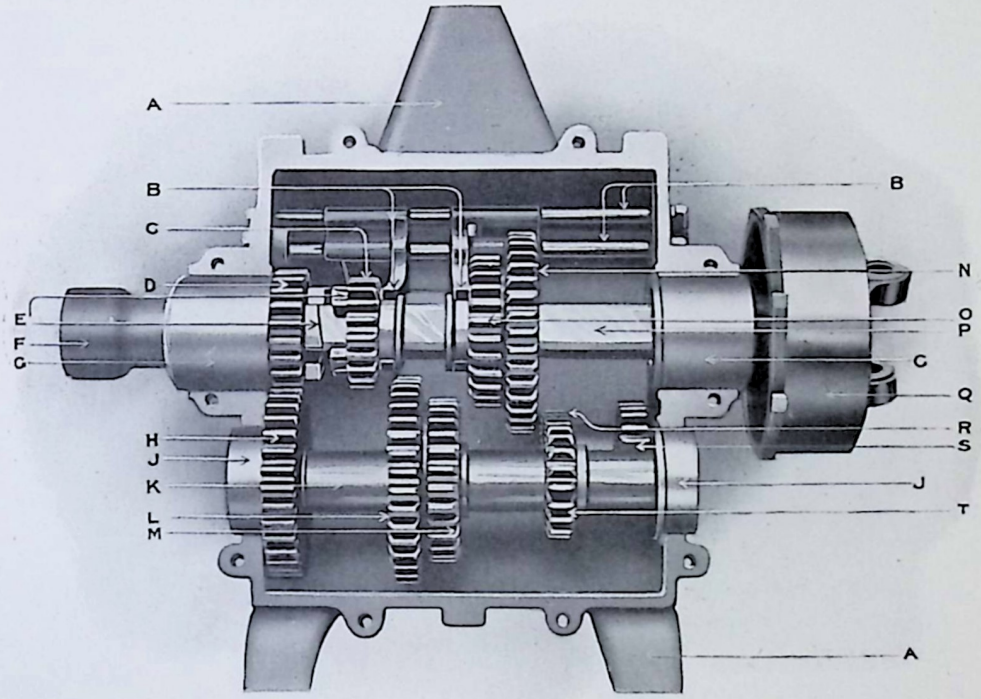


View showing the Pedal, Rods, and Levers by means of which the Foot Brake is operated.—14-16 H.P. Model.

The operation of the gears is as follows:—The main drive from the engine is transmitted to the coupling F, which is mounted on the spindle, at the other end of which is rigidly attached the wheel D. This wheel is, at all times, in gear with the countershaft wheel H, which latter causes the countershaft K to revolve, and with it the wheels T, M, and L. The front end of the main shaft P is supported in a suitable bearing inside the wheel D.

The different position of the gear wheels on the various speeds is as follows:—For the first speed the wheel N is drawn backwards on the main shaft

until it is in gear with the wheel T. The drive is then from the engine to the wheel D, which carries with it the wheel H and, of course, the wheel L, this, in turn, driving the main shaft through the wheel N. On this gear, at normal engine revolutions, the speed of the car is approximately twelve miles per hour. The second speed is obtained by sliding the wheel O into gear with the wheel M. The drive is then through the countershaft as before, the wheel M driving the main shaft through the wheel N the speed under these circumstances being approximately twenty-four miles per hour.



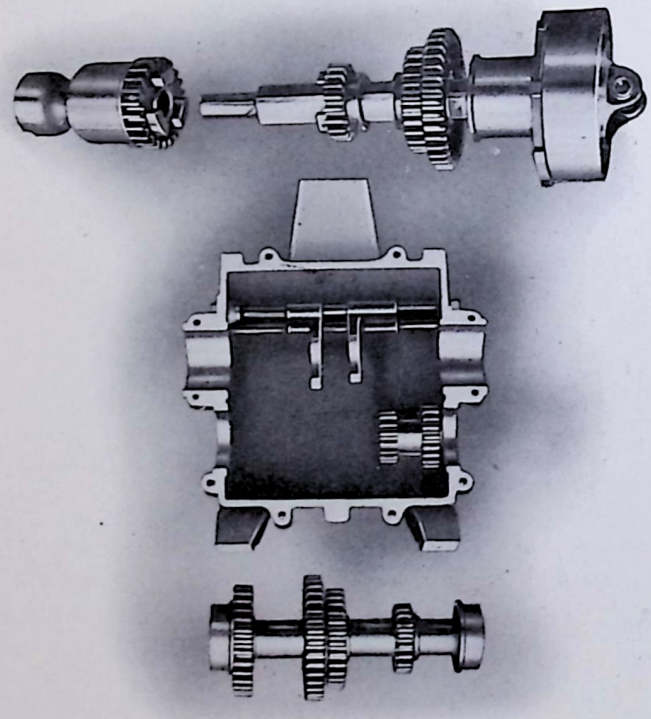

**Argyll Four-Speed Gear Box.—40 H.P. Chassis.**

The direct or third speed is obtained by engaging the jaw clutches E on the wheels D and C respectively, the main shaft under these circumstances revolving at the same speed as the engine, making speed of the car approximately thirty-six miles per hour.

For the fourth or top speed the wheel C is put into mesh with the wheel L, the speed of the car at normal engine revolutions being in this case approximately forty-eight miles per hour.

The reverse gear consists of two wheels R and S, mounted together on a short spindle, and placed immediately below the countershaft. The wheel R being constantly in mesh with the wheel T on the countershaft, the two wheels R and S are always revolving. In order to operate this gear the first speed wheel N on the main shaft is moved to the rear of the box, when it engages with the wheel S, the drive being from the wheel D to the countershaft wheel H, from the wheel T to the wheel R, this latter carrying with it the wheel S, which, engaging as it does with the wheel N on the main shaft, causes it to revolve in an opposite direction to that obtained on the four forward speeds, the speed of the car at normal engine revolutions being in this case, as in the first speed, approximately twelve miles per hour.

The reader will readily understand that the different gear speeds mentioned above can, on each of the gears, be very considerably varied by controlling the engine speed, which is done by means of the throttle already described. In fact, taking the third speed as an example, under the proper circumstances this can be varied from about five to forty-five miles per hour, and on the other gears an approximately similar variation can be obtained.



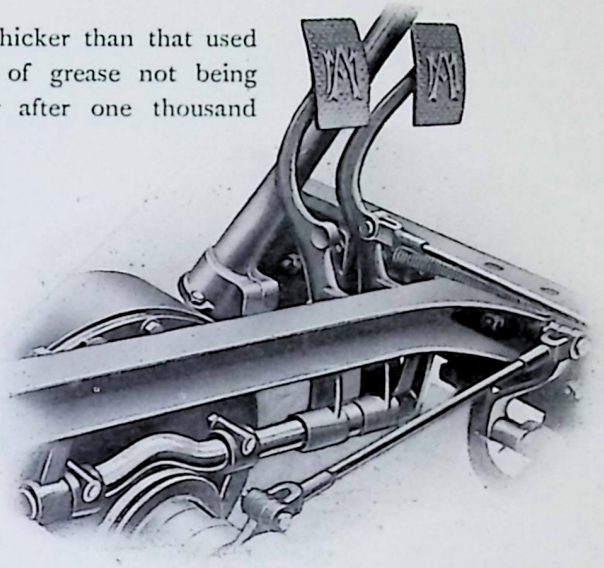
Component Parts of the Four-Speed Gear Box.

To the rear end of the main shaft there is rigidly attached the very broad and substantial brake drum Q. This, however, will be found illustrated and described later in this article.

This gear box throughout is of exceptionally strong construction, and, in designing it, the principal object has been to make it as simple, efficient, and reliable as possible.

A few hints as to the lubrication, etc., of the gear box will, no doubt, be useful. Oil is recommended as a lubricant, this being

of a heavy nature, and considerably thicker than that used for lubricating the engine, the use of grease not being recommended. It is advisable, say after one thousand miles of running, to take out the screw plug which will be found in the bottom of the aluminium casing, and run off all the lubricant. The whole box should then be washed out with paraffin, subsequently replacing the plug and adding a fresh charge of oil. The old oil which has been taken out may contain minute particles of grit, etc., and for this reason should be discarded, as, owing to this foreign matter, it would not efficiently perform its function as a lubricant.



View of Chassis, showing Pedals and Clutch Operating Shaft.

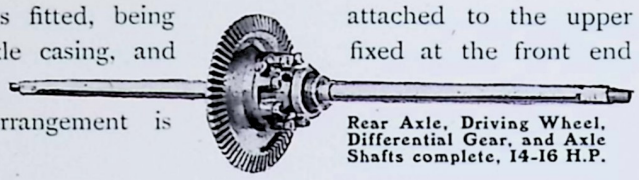
## PROPELLER SHAFT AND RADIUS RODS.

It will be noticed in the views of the 14-16 H.P. chassis that the propeller shaft is attached at its forward end by means of a universal joint to the rear side of the foot brake drum D, and that at its other end it is also fitted to a universal joint, this being a sliding fit on the square end.

The radius rods, which are situated immediately underneath the side members of the frame, are so designed that they lie in practically the same plane as the propeller shaft itself. Such an arrangement is extremely advantageous in that it reduces to a minimum the sliding motion of the universal joint on the rear end of the propeller shaft, due to the action of the springs when passing over rough roads, and contributes largely to the smooth running of the car.

Quite a different arrangement from that just described is, however, adopted in connection with the 40 H.P. car, and it will be noticed in the views of this chassis that, whilst the propeller shaft is arranged on practically the same principle as on the other models, the radius rods are dispensed with, and, instead, the thrust is transmitted through the front end of the side springs, which in this case, it will be noticed, are attached to a fixed stay on the side of the frame instead of to a movable shackle as on the 14-16 H.P.

In addition, a torque rod is fitted, being attached to the upper and lower sides of the back axle casing, and fixed at the front end by a movable link attachment. For high-powered cars this arrangement is considered advantageous.



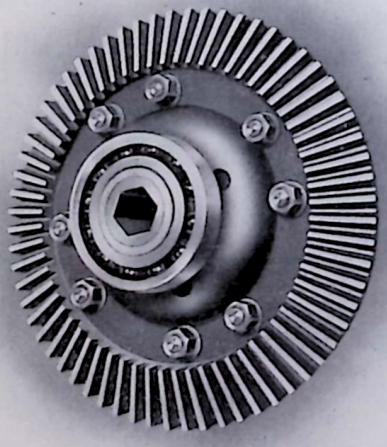
Rear Axle, Driving Wheel, Differential Gear, and Axle Shafts complete, 14-16 H.P.

## LIVE AXLE.

All Argyll cars are fitted with a gear-driven live axle, which is the same on all models except the 40 H.P., which differs in many respects, making it necessary to describe both types separately.

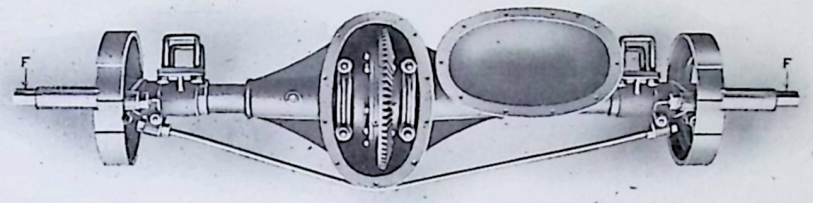
Taking first the 14-16 H.P. type, various illustrations of which are given herewith, it will be noticed that very substantial conical casings extend from the centre portion of the axle towards the road wheels. These make the axle extremely rigid, and reduce to an absolute minimum the possibility of strain on the differential gear and other running parts. All shafts, wheels, and, in fact, all the component parts of the axle are very substantial. All running parts are case-hardened, and the road wheels, which are supported on ball bearings placed on the outer end of the axle casings, have substantial steel drums attached to them.

For the lubrication of this very important part of the car a good quality of motor grease, which is not too heavy in the body, is recommended. There is one point to be very strongly urged upon car owners when replenishing—that is, on removing the inspection lid, scrape away the grease which will be found adhering to the sides of the case. At this stage, with both wheels jacked up, any of the gears may be engaged and the engine run very slowly; then, through the inspection lid, pack into the casing as much grease as it can possibly take, the gears meanwhile being kept running. When the casing is quite full, it will be found advantageous to add about one pint of the same oil as used for lubricating the engine. It is not recommended that the back axle should be cleaned out at any time; if the loss from leakage is made good, the running will be perfectly satisfactory.



Driving Wheel of 40 H.P. Back Axle.

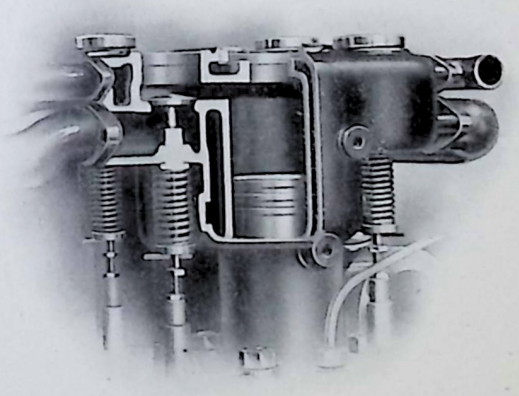
Turning now to the type of axle fitted on the 40 H.P. model, this, as already mentioned, is of an entirely different design, as will be seen from the accompanying photographs, and, on closely following the description, the reader will find that it possesses many exceptionally advantageous features.




**Back View of 40 H.P. Back Axle. Cover removed.**

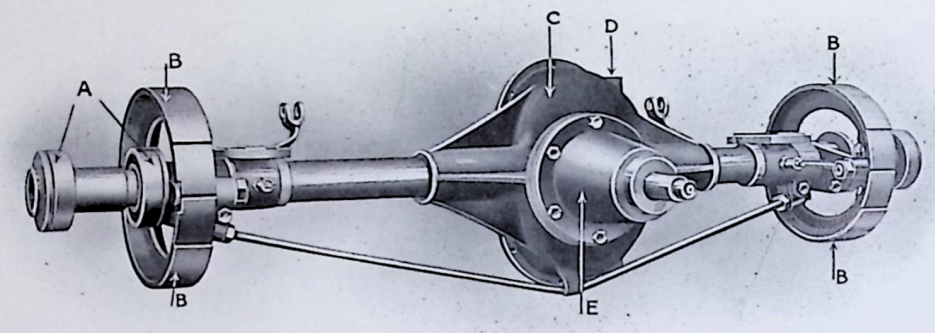
In common with the other types of axle, it is of exceptionally substantial design. Taking the front view it will be noticed that the main casing C is in one piece. At the rear side of this casing, a large inspection cover, shown in illustration given above, is arranged, this being securely bolted to the axle casing. On the front side of the axle is arranged the driving spindle and pinion, these being cut out of the solid and in one piece. The spindle is supported by very large ball bearings that are fixed inside the casing E, this being attached to the main casing C by means of six bolts.

Each of the road wheels run on two ball bearings A, these being mounted on the axle sleeves, the power being transmitted to the wheels through the axle shafts F, as shown in the first illustration. The road wheels, as on the other models, have attached to them a very substantial brake drum, inside which the brake shoes B expand, being under the control of the driver by means of a suitable arrangement of rods and levers connected up to the hand brake lever which is placed in a convenient position for operation.



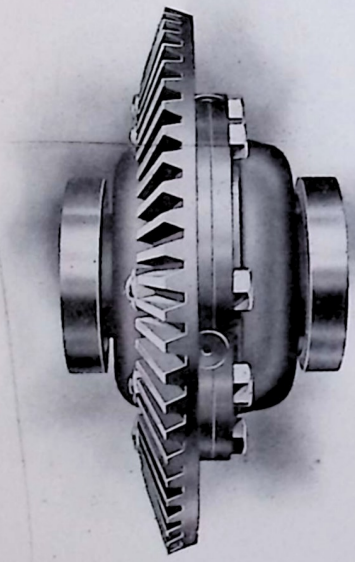
**Cylinder of 14-16 H.P. Engine, shown in Section.**

The torque rod already referred to is attached to the projecting lugs D formed




**Front View of 40 H.P. Back Axle.**

on the axle casing. One particular feature in connection with this axle is that it is possible without jacking up the car or removing the road wheels to make a thorough examination of the axle, as it can be entirely taken down by removing the axle caps and drawing out the axle shafts, then removing the large inspection cover at the rear of the axle, when the whole of the differential gear can be easily drawn out. Similarly, by removing the casing E, the driving spindle and pinion can also be removed for inspection. Anyone being acquainted with the general construction of motor cars will readily understand and appreciate the exceptional accessibility afforded by this design.

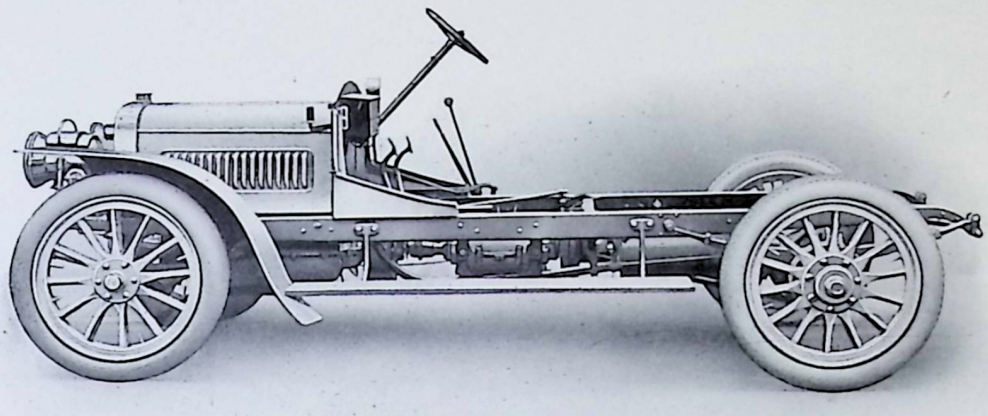


**Front View of Back Axle. Driving Wheel with Differential.**

A number of illustrations of the component parts of the axles are given herewith, and the reference to each one underneath the illustration will no doubt give sufficient explanation to the reader.

## BRAKES.

Particular attention has been paid on all Argyll cars to this most vital detail. The rear brakes on both models are on exactly the same system, which will be readily understood by reference to the accompanying photographs. It will be noticed that there are two large cast iron shoes



40 H.P. Chassis.

normally drawn towards each other by means of two strong spiral springs, the front end of the shoes being supported on a round stud A, which acts as a fulcrum.

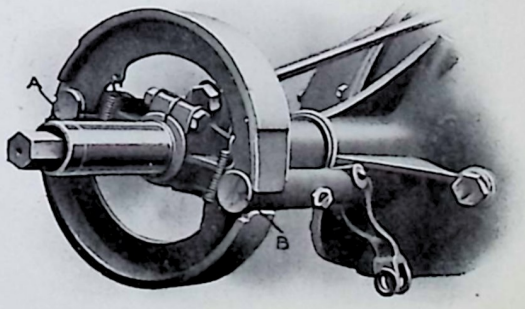
The brakes, as the reader will at once observe, are of the internal expanding type, and are brought into operation by a suitable arrangement of rods and levers, which, when the brake is applied, rotate a rectangular cam B, which will be found at the rear end of the shoes. This, of course, expands them and brings them into contact with the steel drum, which, as already explained, is rigidly attached to the road wheels.

The brakes act equally well both backwards and forwards, are easily applied, and can be depended upon at all times to hold the car instantly, even on the very steepest incline.

In order that the driver may have no excuse for having his rear brakes out of order, a very simple and at the same time convenient hand adjustment is provided.

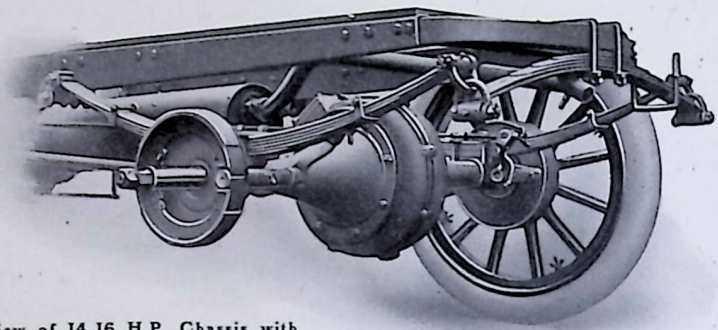
The foot brakes, however, are of two different types, one for the 40 H.P., and one for the remaining models.

Turning first to the 14-16 H.P. type, this consists of a steel band, which, by suitable rods and levers, is caused to grip the brake drum shown in the illustration of the gear box.




View of Back Axle showing Brake Shoes.

On the 40 H.P. model, however, two large cast iron shoes are provided. They are situated on opposite sides of the brake drum, as will be readily seen from a later illustration. The braking surface is exceptionally large, and the brake extremely sweet and powerful in action.



View of 14-16 H.P. Chassis with Back Wheel removed, showing Brake Shoes.

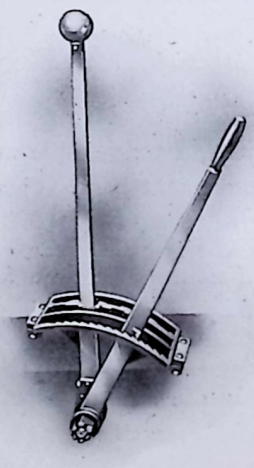
The importance of keeping all brakes and their various connections in order cannot be over-estimated, as neglect may lead to most serious consequences, and, in this connection, it is advisable that the various moving parts, with the exception, of course, of the braking surfaces themselves, should receive frequent lubrication.

Referring to the hand brakes, first in importance of the various parts are the rocking spindles carrying the cams which cause the brake shoes to expand. A grease plug will be found in the bearing carrying these spindles, and it is advisable to remove this occasionally and inject a charge of grease by means of grease injector provided with the car outfit.

## THE ROAD WHEELS.

All road wheels fitted to Argyll cars are of specially designed pattern, and have staggered spokes, giving them a maximum amount of lateral strength, and minimising very largely the possibility of damage to the road wheels in any unfortunate side slip or collision.

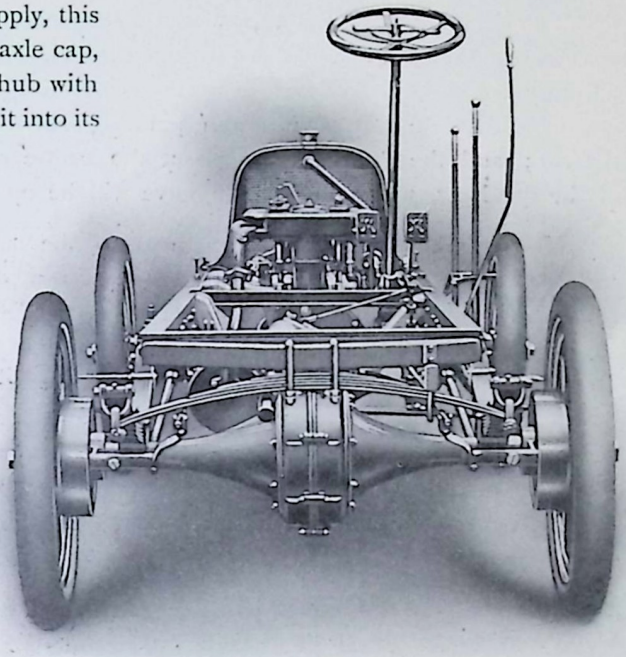
The lubrication of the front wheels does not require a great deal of attention. The wheels run on ball bearings, which type of bearing, when properly designed and manufactured, reduces friction and attention to a minimum. The ball bearings fitted on Argyll cars are of a well-known type, and are generally admitted to be the finest procurable. When the wheels are fitted to the chassis, the hubs are packed full of suitable grease—this, barring accidents, being sufficient for nearly a season's running.



Change Speed and Brake Levers of 40 H.P. Chassis.

If it is desired to add a further supply, this can be done by removing the large axle cap, and, after packing both it and the hub with as much as they will take, screwing it into its position, this action forcing the grease into all parts of the hub.

To keep the carriage springs in good condition and perfectly quiet, lubricate the leaves about once a month, proceeding as follows:—Put either a bar of iron or of wood under the horns of the frame, placing the jack under this, and raising the car until the wheels are clear of the ground. The whole weight of the wheels and axles will then be hanging on the springs, this causing the leaves to open out slightly. Now, using an old knife, spread in either heavy grease or tallow. This will be found an efficient lubricant and ensure perfectly silent running. The treatment of both back and front springs should be similar.

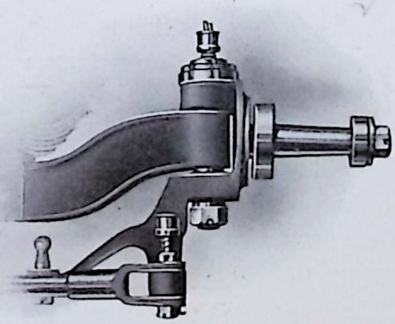


Rear View of 14-16 H.P. Chassis.

## HINTS ON STARTING.

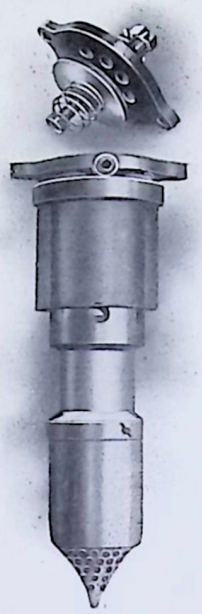
A few general hints as to starting the car and the handling of same will no doubt prove useful. In order to start up, first ascertain that there is a supply of petrol in the tank. Next (and this is a most important matter), see that the petrol tap is turned on. Nearly every motorist can call to mind some desperate struggle endeavouring to start the engine, subsequently finding that the petrol tap was turned off.

The carburettor should now be flooded slightly by gently raising the needle, the upper portion of



Rear View of 40 H.P. Front Axle Swivel.

which projects through the top of the float chamber cover, and the switch then turned on (equally as important as the petrol tap); put the ignition lever in its fully retarded position, *i.e.*, at the end of the quadrant, and pointing out sideways from the car; and the throttle lever about the centre of its portion of the quadrant, when the throttle valve will be open.



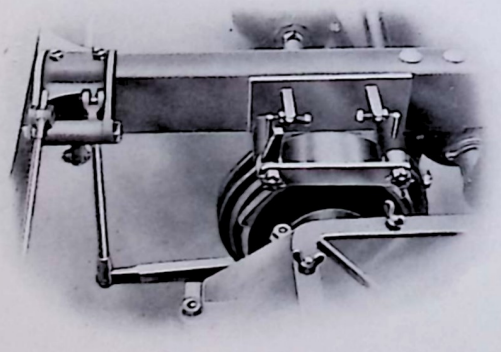
Moving Sleeve from Argyll Throttle.

Now give one or two sharp turns to the starting handle and the engine will immediately start up; it will, of course, run at a high speed, but this can be instantly controlled by partially closing the throttle, making the engine run slowly and quietly. The ignition lever should, at the same time, be advanced about half-way down its portion of the quadrant, and for all ordinary running it will be found that there is very little necessity to alter its position—the speed of the engine, and, consequently, that of the car, being controlled by the manipulation of the throttle lever alone.

It should be pointed out that both throttle and ignition levers can be operated simultaneously without the driver losing his hold of the steering wheel, a feature possessed by few other cars than the Argyll.

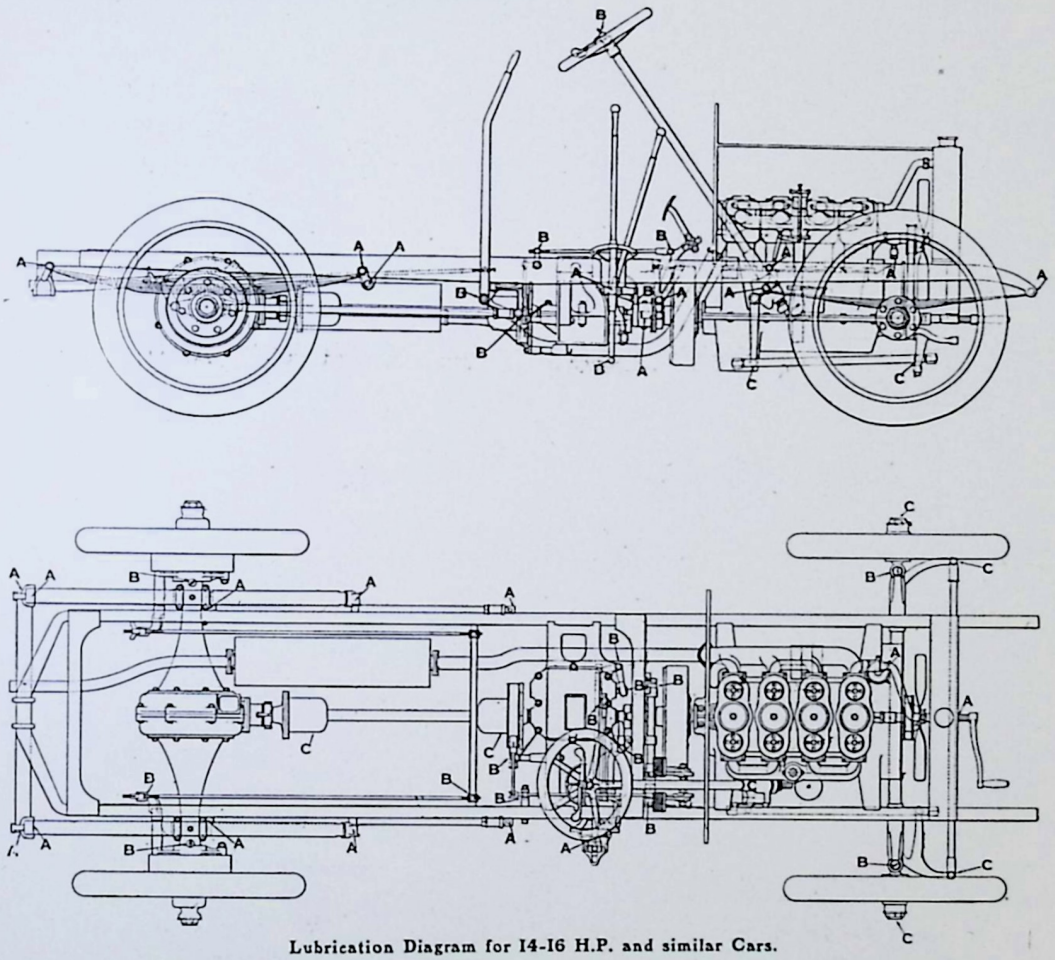
## BEWARE OF STEEP HILLS.

Once the engine is started up, the reader will no doubt easily understand the method of setting the car in motion by operating the gear in the manner already described, but a word or two as to the descent of steep or dangerous hills will not be out of place. When descending very steep gradients, it is recommended that the descent be made on the second speed, or even the first speed if the hill is very dangerous. Under these conditions the car cannot run away, and the brakes are reserved for any emergency. Ordinary hills, of course, can be descended with the engine running free, but never allow the car to get out of control; always know that it can be stopped immediately if necessary. The brake power provided is more than ample, but it should not be



Foot Brake on 40 H.P. Chassis.

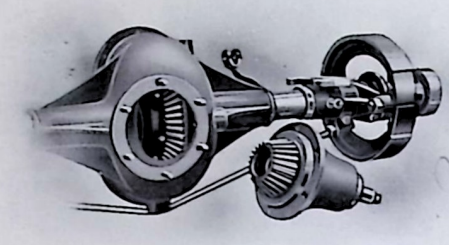
abused. When driving in the ordinary way, allow plenty of time to stop, as sudden application of the brakes is severe on the mechanism and tyres, and should only be resorted to in emergency to avoid accident.



Lubrication Diagram for 14-16 H.P. and similar Cars.

## FINAL ADVICE.

Throughout this article an endeavour has been made to give general instructions as to the lubrication of the various parts, but to still further assist the reader in what is practically the most important subject in connection with the car, two diagrams are given herewith, the various details of the car being marked A, B, and C respectively.



40 H.P. Back Axle—Driving Pinion removed.

All parts marked A should have lubrication daily; those marked B, weekly; and those marked C, monthly; this instruction being given on the understanding that the car is in constant use, and a daily run of about one hundred miles being reckoned; under other circumstances, lubrication to be in a corresponding proportion.

A few hints as to the driving of the car, and hints which, by-the-bye, are equally applicable to all cars, will, if carefully followed out by the user, be found to keep the cost of running the car to a minimum.

Avoid driving with the wheels on tram lines.

Drive slowly when turning corners.

Use the brakes gently, and do not, except in an emergency, apply them suddenly.

Start the car gently.

Stop the car gently.

Let in the clutch slowly.

Keep the tyres pumped up to the proper pressure.

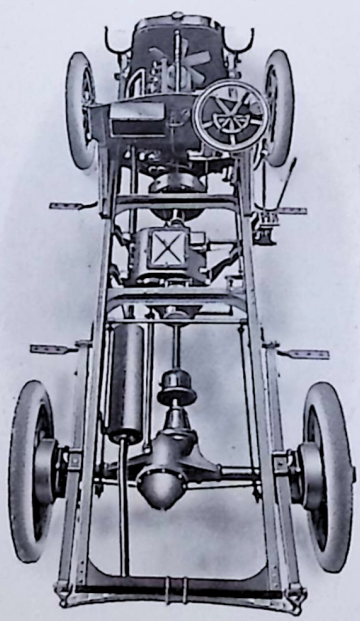
Fill up any cuts in the tyres as soon as discovered.

Make a thorough examination of the car at frequent intervals, and ascertain that all nuts, etc., are tight

Keep the car clean, both internally and externally.

Do not let the engine labour when going up hills, but change to a lower gear in plenty of time. Nothing is more severe on the car than the heavy thumping occurring under such circumstances.

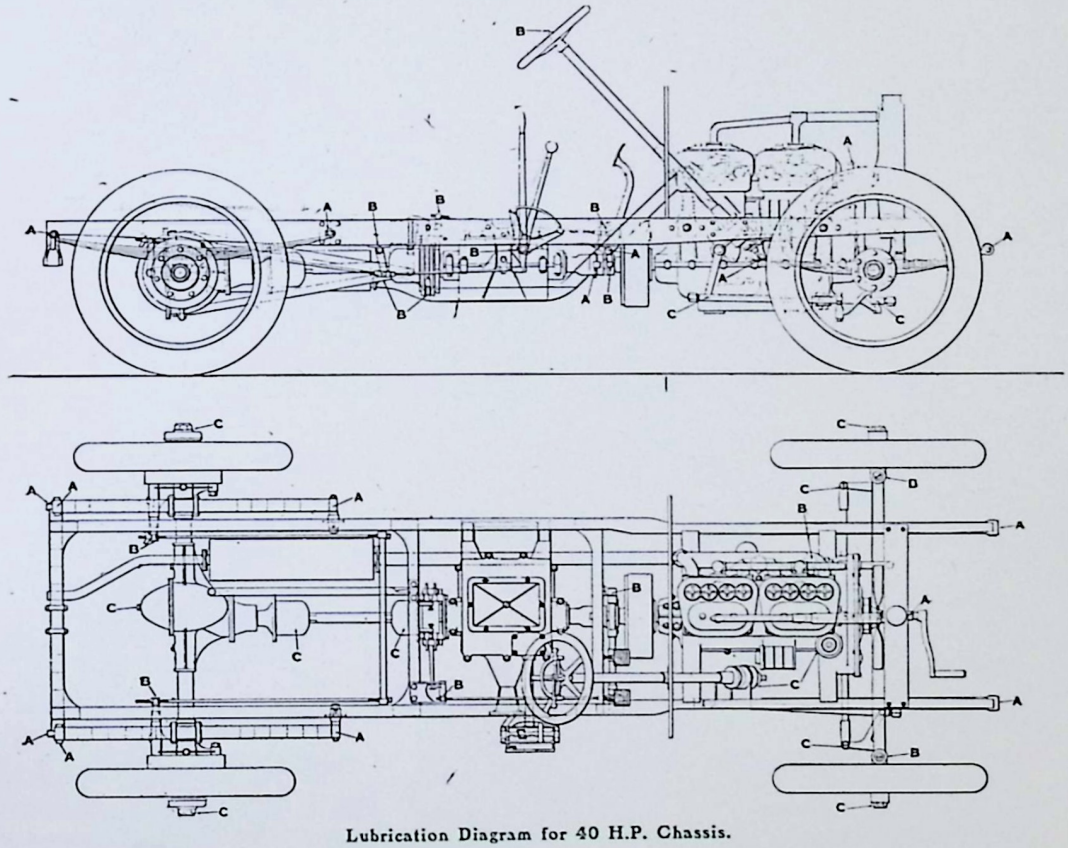
In driving, always be on the alert for the first indication from the engine that the ignition is too far advanced, and this being so, immediately retard it by



View of 40 H.P. Chassis, taken from above.

means of the control lever on the steering wheel. The crank shaft and connecting rod bearings are subjected to very greatly increased pressures if the engine is allowed to run under such conditions, and, in consequence, their life considerably shortened.

Attention to minor adjustments and repairs is well worth while, as nowhere is the saying so true that "A stitch in time saves nine."

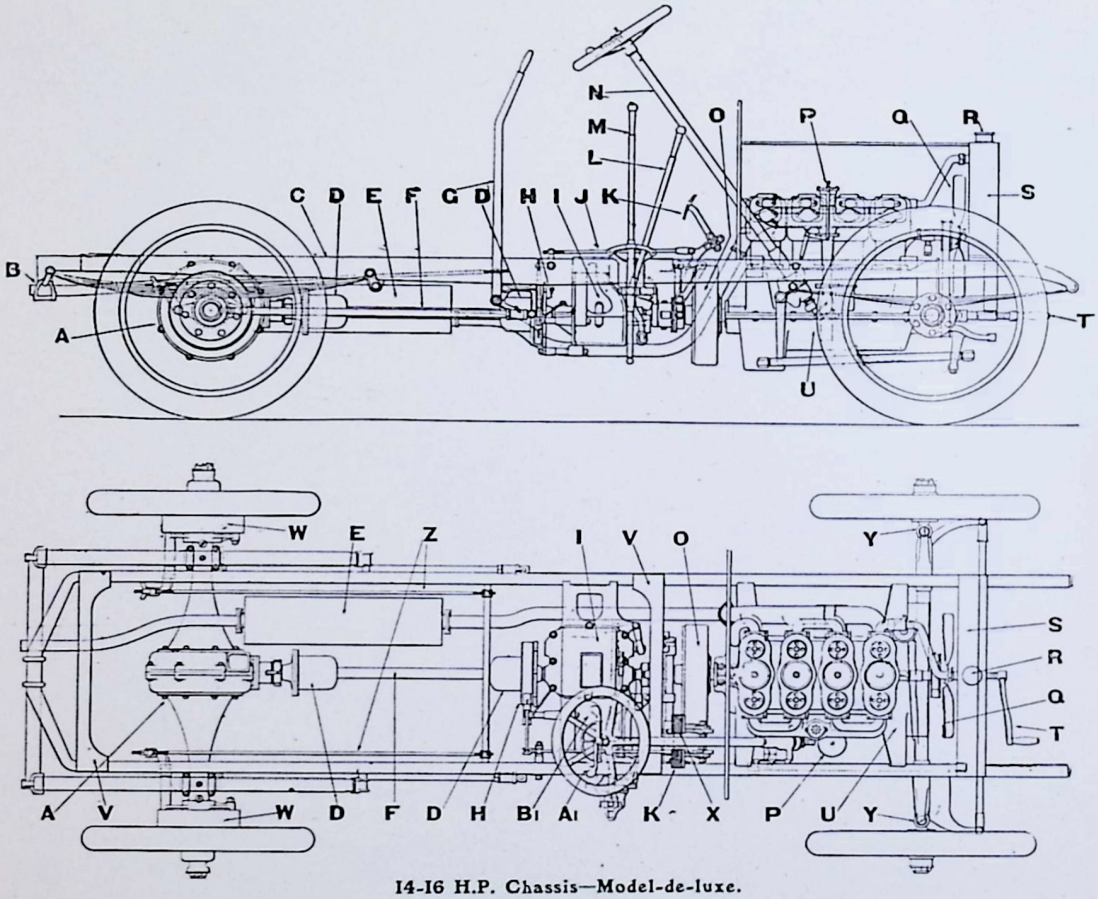


Lubrication Diagram for 40 H.P. Chassis.

Remember that good compression is the life of an engine, and any falling off should be at once rectified if petrol is to be considered.

When learning to drive, the first thing to become proficient in is the ability to stop at a moment's notice. Nearly all early accidents are caused by a neglect of this simple rule.

# 14-16 H.P. Argyll Chassis.




14-16 H.P. Chassis—Model-de-luxe.

**A** Differential Gear Casing.
**B** Spring Shackles.
**C** Frame Longitudinal Runner.
**D** Universal Joint Casing,
**E** Silencer.
**F** Propeller Shaft.
**G** Hand Brake Lever.
**H** Foot Brake Drum and Sprag.
**I** Gear Box.
**J** Foot Brake Rod.
**K** Foot Brake Pedal.
**L** Reverse Speed Lever.
**M** Change Speed Lever.
**N** Steering Column.
**O** Flywheel and Clutch.
**P** Carburettor.
**Q** Fan.
**R** Water Filler.
**S** Radiator.
**T** Starting Handle.
**U** Engine Crank Case.
**V** Frame Crossbar.
**W** Brake Drum.
**X** Clutch Pedal.
**Y** Steering Pivots.
**Z** Back Brake Pull Rod.
**A1** Ignition Control Lever.
**B1** Throttle Control Lever.

# Steering Gear and Engine Control Levers.

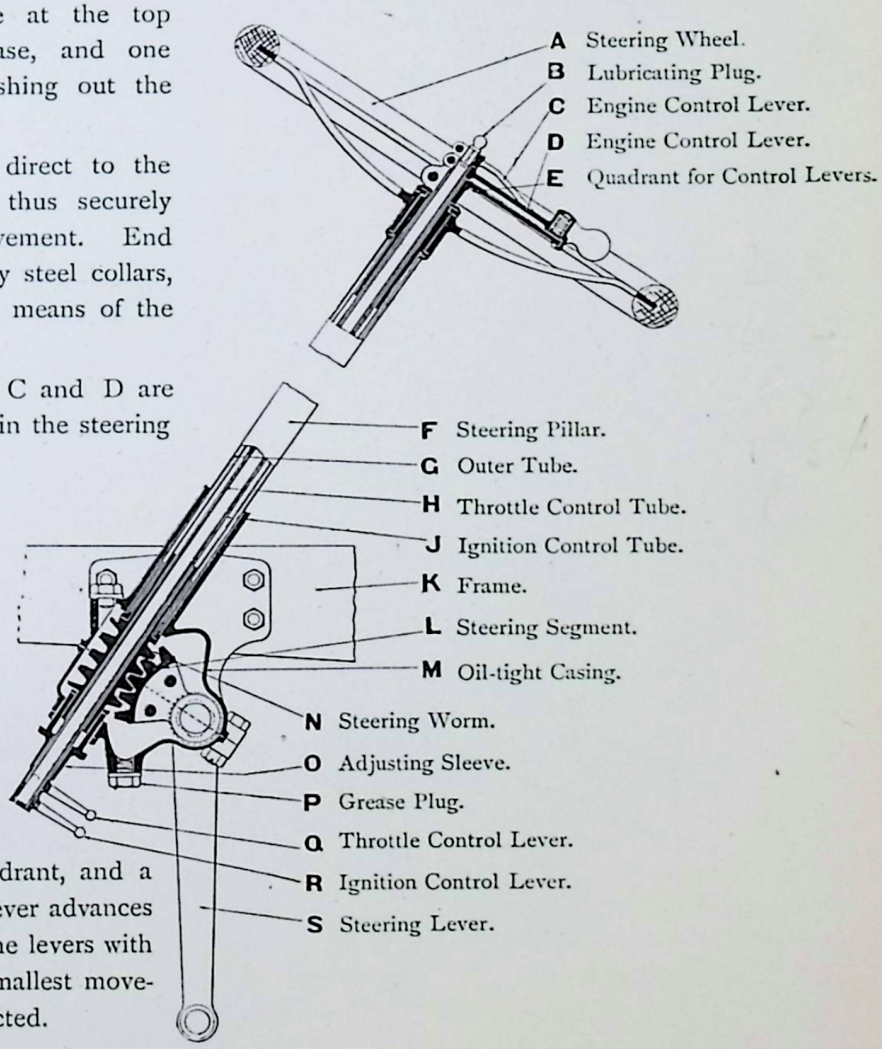
THE importance of the steering gear has been kept well in mind in designing. Here, as elsewhere, only the finest material and workmanship are employed.

The arrangement consists of a steering pillar F, carrying a tube G, to one end of which is attached the operating hand wheel, and to the other the machine-cut steel worm N acting on the wheel segment L. The motion of this segment is conveyed by way of the rocking shaft to swing lever S, and thence to the road wheel swivels. The worm and segment are encased in chamber M, which is filled with grease, screw plugs P being provided, one at the top for the injection of the grease, and one below for convenience in washing out the chamber with paraffin.

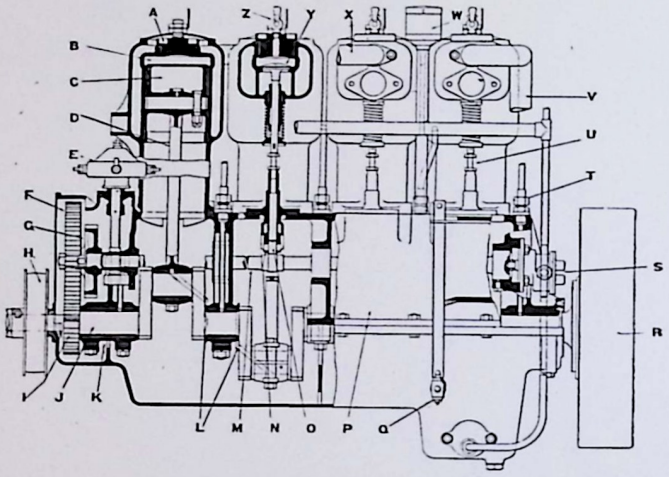
The casing M is bolted direct to the frame of the car K, and is thus securely fixed against any possible movement. End thrust of the worm is taken by steel collars, and adjustment is provided by means of the threaded sleeve O.

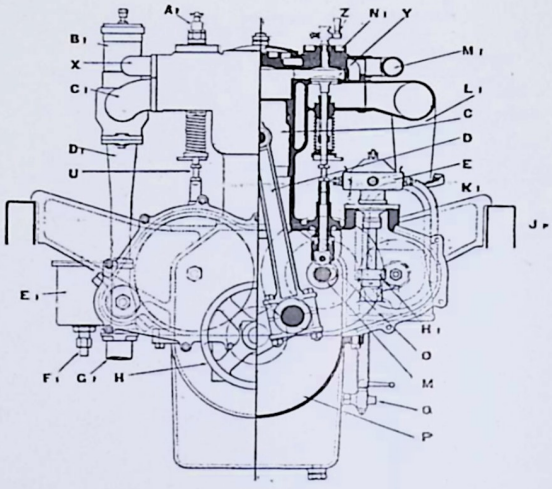
The engine control levers C and D are arranged on a quadrant E within the steering wheel; the movement from these is conveyed by way of the tubes H and J to levers Q and R, and thence by rods to the throttle valve and the commutator.

The left-hand lever controls the throttle, and the right-hand one the commutator; to increase the engine speed, the throttle lever is brought towards the centre of the quadrant, and a similar movement of ignition lever advances the ignition. The contact of the levers with the quadrant is such that the smallest movement can be conveniently effected.



# 14-16 H.P. Argyll Engine.




**A** Cylinder Plug.
**B** Cylinder.
**C** Piston.
**D** Connecting Rod.
**E** Commutator.
**F** Half Time Wheel.
**G** Magneto Driving Wheel.
**H** Fan Pulley.
**I** Main Shaft Timing Wheel.
**J** Crank Shaft.
**K** Crank Shaft Bearing Covers.
**L** Crank Shaft Oil Discs.
**M** Cam Shaft.
**N** Valve Lifter.
**O** Valve Lifter Roller.
**P** Crank Case.
**Q** Drain Cock.
**R** Flywheel.
**S** Oil Pump.
**T** Crank Case Lubricating Unions.
**U** Valve Adjusting Pins.
**V** Inlet to Water Jackets.
**W** Crank Case Oil Filler.
**X** Water Circulating Pipe.
**Y** Exhaust Valve.
**Z** Compression Tap.
**A1** Sparking Plug.
**B1** Combined Carburettor and Throttle.
**C1** Inlet Pipe.
**D1** Carburettor Pivot Tube.
**E1** Carburettor Float Chamber.
**F1** Petrol Inlet.
**G1** Hot Air Inlet.
**H1** Commutator Spiral Wheel.
**J1** Frame.
**K1** Magneto.
**L1** Exhaust Pipe.
**M1** Water Outlet to Radiator.
**N1** Valve Plug.

THE principal features of the 14-16 H.P. Argyll engine are now well known, being the result of the extensive experience of the Company with engines of their own and other manufacture. Roughly, it might be said that this engine has been designed on the road, being the outcome of most extensive road trials and test-bench experiments. As in other parts of the car, the idea that first occurs to a casual observer is the general simplicity and accessibility of all parts, and these points, taken in conjunction with the demonstrated unfailing reliability, have made an enviable reputation for this engine, this success being the outcome of the careful and special study given to each part, and the result an engine remarkably steady and quiet at all speeds, flexible, and quick in responding to the control. Only the finest materials are used, and no expense has been spared in providing special tools to enable these engines to be turned out in large numbers with all parts accurately machined and absolutely interchangeable. The cylinders, pistons, cranks, and all the other working parts are ground

to size on special machines, the accuracy of the work being assured by the use of very fine limit gauges.

The line drawings on opposite page illustrate the design. The one view shows a side elevation, with one cylinder in section through the centre and another in section through the valves. The other view is an end elevation, the right-hand side of which is a section taken through one of the cylinders and its exhaust valve.

As will be seen, the engine is hung direct from the main frame J1, by means of substantial brackets cast in a piece with the upper portion of the engine casing.

The pistons C are of ample depth, and they are kept tight by the assistance of three rings. The gudgeon pins are of large diameter, a locking screw, as shown, being provided to secure each pin in position. The water jackets are of good capacity, and, together with the water connections, are arranged so as to be most effective. The connecting rod D is of H section, being designed with a regard to lightness consistent with ample strength. The crank shaft is turned from a forging of specially selected nickel steel; a bearing of ample width is provided between each crank, these holding the shaft rigidly and in true alignment.

The valves are all alike and interchangeable, the exhausts being arranged on the one side and the inlets on the other; they are operated by two cam shafts driven by the necessary two-to-one gearing, which gearing is totally enclosed. The valve lifters are marked N, their contact with the operating cams being by anti-friction rollers O; the amount of lift of each valve can be adjusted by means of screw U and lock nut. The inlet pipe C1 is arranged in conjunction with special type of throttle control; the exhaust gases are led from engine exhaust pipe L1 through the silencer to the back of the car.

Forced lubrication is provided for the main bearings, the oil passing to the tail bearing of the crank shaft through a sight feed, this serving the double purpose of controlling the supply to this particular bearing, and indicating the satisfactory working of the pump. Special arrangements are made regarding the crank shaft and connecting rod bearings, retaining and feeding discs L being provided to ensure ample lubrication. These discs also act as oil throwers, maintaining an oily mist in the interior of the crank case, ensuring efficient lubricant for pistons, etc.

The commutator E is so placed as to be readily accessible, being driven from the exhaust cam shaft by spiral gear.

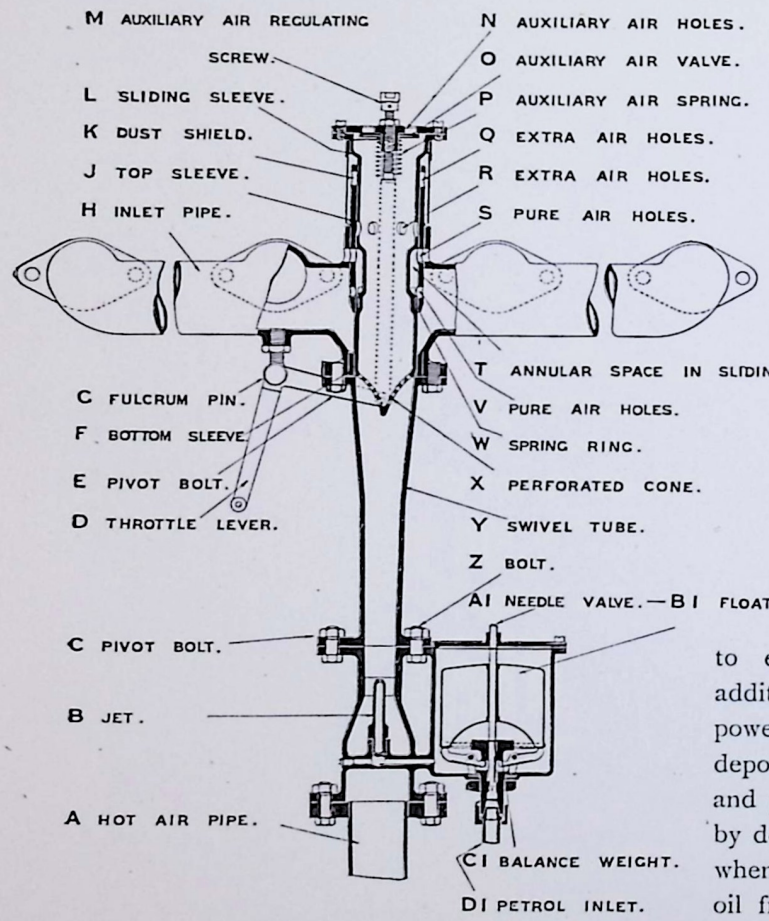
Provision is made on the upper portion of the crank case for fixing a platform to which a magneto can be bolted, this magneto being driven by suitable gears enclosed in the case along with the timing wheels.

The front end of crank shaft carries the fan belt pulley H, with which is incorporated the starting handle clutch.

An efficient under cover is fitted to the engine when on the chassis.

# The Argyll Carburettor and Throttle.

THE Argyll carburettor and throttle for 1908 is of the Company's manufacture and patent design, and may be taken as typical of the 14-16 H.P. *Model-de-luxe*, the 16-20 H.P., 26-30 H.P., and 40 H.P. cars.




In addition to performing the ordinary functions of an automatic carburettor in a very perfect manner, two extra features are introduced which render it more complete.

The first feature is that it is possible to alter the proportion of air to petrol while the engine is running, and thus obtain the best mixture; this varying from day to day, and even in some weathers from hour to hour.

The second feature is that it is possible to shut off all connection with the petrol jet, and allow nothing but pure air to enter the engine. This, in addition to considerable braking power, serves to remove off any deposit of carbonised oil from pistons and plugs; and, last but not least, by destroying the vacuum produced when the throttle is closed, prevents oil from being sucked up into the cylinders. All the operations are performed by one throttle lever, the arrangement being such that, when the valve is full shut, fresh air only passes to the engine. This fresh air is shut off as the throttle lever is moved, and the valve gradually opens to the petrol mixture, regulated by an automatic air valve.

When the valve is full open, a further movement of the throttle lever is utilised, in the manner described on next page, to open the extra air inlet, and so dilute the mixture to suit the various conditions of the atmosphere.

This carburettor and throttle is singularly free from sharp bends in the induction pipe, which tend to throttle the engine, and pockets where petrol may lodge and spoil the mixture.

The float chamber is of the ordinary type, care being taken to draw the petrol to the jet from a point a little above the bottom, so as to trap any grit which might be present.

Hot air is drawn from the neighbourhood of the exhaust pipe by means of the pipe A, and flows past the jet, sucking up the petrol in the usual manner. The pipe Y, above the jet, differs from usual practice in that it expands very gradually, thus preventing eddies and allowing a larger volume of gas to reach the engine.

In order to take out the jet the pipe Y is swung to one side, using the two bolts C and E as centres; the flanges on the other side being cut away to clear the bolts.

The sliding sleeve L is worked in a vertical direction by means of the bell crank D and two side rods.

In the full shut position, as shown, all connection between the engine and the jet is closed, but fresh air can pass through hole S and down the annular recess T to the inlet pipes by means of the holes V. As the sleeve is lifted the spring ring W covers the fresh air holes V to inlet pipe, and establishes communication between the jet and engine. The bottom of the sleeve L is tapered to allow of very gradual throttling, this delicate adjustment enabling the engine to be run at low speeds.

On opening up the throttle sleeve still further, auxiliary air is sucked in through the auxiliary air holes N on top of sleeve, and passes down the centre and out at the perforated cone at bottom. In this way pure air is brought into intimate contact with the liquid petrol (not already vaporised by means of the hot air), which dashes against the perforated cone, and a very even mixture is obtained. A point is soon reached when raising the sleeve does not, in the ordinary course, allow any more mixture to pass to the cylinders. This further movement of the sleeve is, however, utilised to bring the holes R into line with the holes Q. As the one set of ports uncovers the other, the auxiliary air valve O gradually stops working until all the auxiliary air is passing through the holes Q and R. These holes are so proportioned that this takes place before they completely correspond, so that a margin is left whereby an excess of air may be sent to engine, thus allowing the utmost economy to be obtained. It is found that on different days the position of the sleeve to obtain the maximum power varies, thus showing that no automatic carburettor can be absolutely correct at all times. It will be noticed that the greater part of the mixture consists of auxiliary air which has only a small distance to travel before it

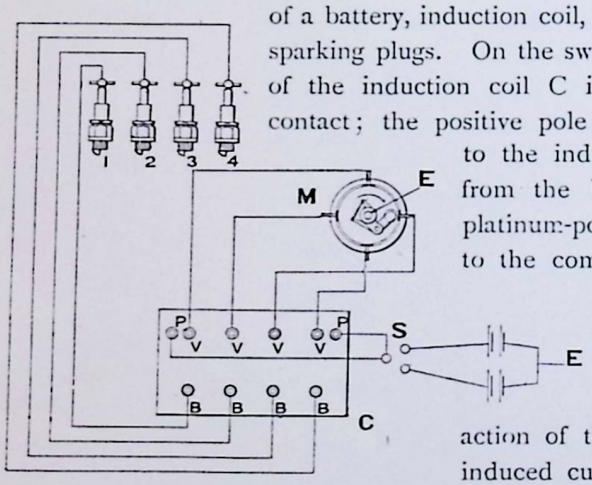
enters the cylinder; it is therefore necessary that a very rich mixture should pass up tube Y. As the engine is not using any auxiliary air when on light loads, extra slow running is possible.

A shield K is used to prevent dust settling on outside of sleeve L when the valve is full open.

All carburettors are carefully adjusted to give the best results in economy and power with the engine to which they are fitted, and should not be tampered with unless under special circumstances.

# Ignition for Argyll Engines.

THE ignition arrangements on Argyll cars are extremely simple, and, in consequence, there is a gratifying freedom from trouble. The standard arrangement is by means of a battery, induction coil, commutator, and the necessary cylinder sparking plugs. On the switch S being put on, the primary circuit of the induction coil C is completed through the commutator contact; the positive pole of the battery having been connected to the induction coil terminal, the current flows from the battery to the coil by means of the platinum-pointed screw and trembler blade, then to the commutator M; the negative pole of the battery and the commutator wire both having been "earthed," the circuit is completed. The current flowing in this circuit is continually interrupted by the action of the trembler, this causing high voltage induced currents to pass in the secondary circuit in which the sparking plugs are connected.



Wiring Diagram.

The two-way switch is embodied in the coil case, the terminals for the accumulators being ranged along with the others. The standard ignition only calls for one accumulator—a spare, however, is generally carried. To facilitate the tracing of connections, the wires from the coil to the commutator are of different colours.

Full provision is made on all engines for fitting a magneto, but, as far as efficiency of ignition is concerned, the standard arrangement is all that can be desired.

The following points may be specially put forward:—

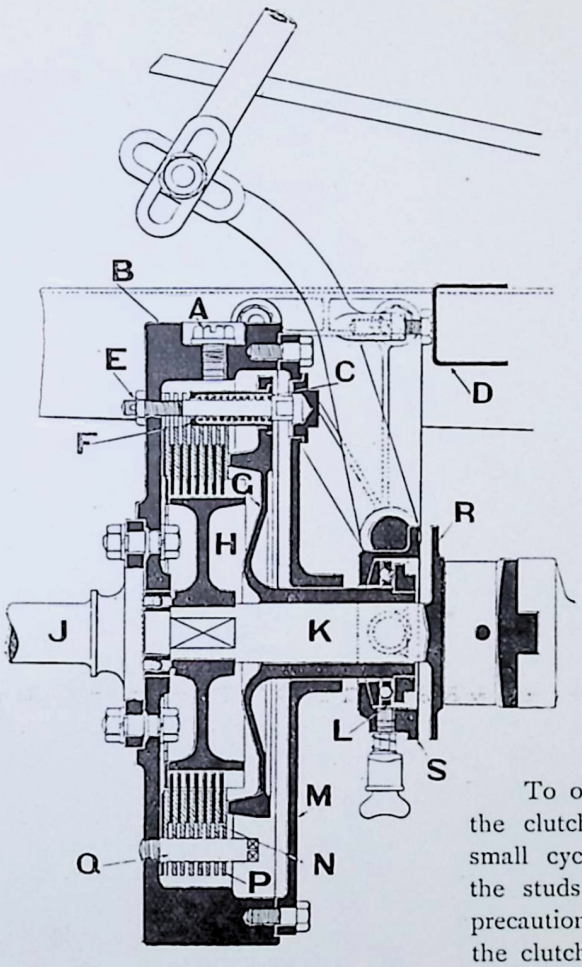
The great simplicity.

The ease with which it can be kept in order.

The facility with which the engine can be started.

The efficiency of the spark at all engine speeds.

# Argyll Multiple Disc Friction Clutch.




THE clutch consists of two sets of flat steel plates arranged in the flywheel, the one set being held in frictional contact with the other by means of springs E acting through pressure plate C. The illustration shows a vertical section through the clutch, J being the end of the engine crank shaft to which is bolted the flywheel B. A series of studs Q are screwed into this flywheel, and on these the plates P are assembled, so that they at all times revolve with the engine crank shaft. The plates N have notches formed on their inside circumference and these engage with projections on wheel H, this wheel transmitting power to the gear box through the shaft K. The alternate manner in which the plates P and N are assembled can be readily seen from the illustration. The clutch is released by the foot pedal acting through ball race L and drawing back the pressure plate G, thus removing the pressure holding the plates in contact.

To overcome the tendency of the oil in which the clutch is running to hold the plates together, small cycloidal springs are threaded on three of the studs Q between each of the plates P, this precaution ensuring the clutch freeing immediately the clutch pedal is depressed.

When the clutch is fully released the surfaces of the discs S and R are brought into contact, which causes the immediate stoppage of shaft K, which is necessary when starting or changing gears. The driving power of the clutch can be increased by altering the compression of springs C, care being taken to do this equally on the three springs. This is effected by screwing studs E further into flywheel casing, and can be carried out by aid of the lock nuts on the back of the clutch, or by removing the covering plug from face of the clutch.

The clutch may, with advantage, be allowed to slip when starting or driving in traffic. The slipping when starting enables the driver to set the car in motion without any jar or jolt, and when driving in traffic a change of gear can, in many instances, be avoided by slightly slipping the clutch; this feature must not, however, be abused. No slip should occur during ordinary driving. The plates are arranged to run in a lubricant contained in the flywheel. Two plugs Q, at right angles on the periphery of the clutch, are provided as a means of adding the lubricant, the method being, with one plug hole at the top and both plugs removed, to add lubricant until it flows out of the second hole, the clutch then being half full.

## Change Speed Mechanism for Argyll Three-Speed Gear Box (Govan Patent).

THE Govan patent gear box is typical of all Argyll cars up to 40 H.P. The speeds are obtained as described on pages 31 to 35; reference to the line drawings on the opposite page will make clear the action of the change speed levers.

When the forward speed lever X is in the central position of the quadrant, as indicated in Fig. 2, the gears are in the free position; when it is moved backward to the second speed, or forward to the third speed, no motion is given to the slow speed actuating bell crank M; when lever X is pushed outward, no motion is given to the second and third speed operating lever O. The second and third speeds are operated through the rocking shaft T, the lever P and crank O, the joint Q and rod R, to which is attached the actuating fork L, the position of this fork and the wheel with which it engages being thus determined by movement of speed lever X.

The first speed is operated through the connecting rod N, the bell crank M, and the joint Q1, which moves the rod R1, to which is affixed the slow speed actuating fork L1. This fork fixes the position of the slow speed pinion, which position is thus also determined by the position of lever X in the T slotted quadrant. An enlargement of lever O is shown at Fig. 3; the main fulcrum is in the centre, but should the change speed lever X be forced over when the jaw clutches are not in a position to engage, then the springs U1 come into operation, and, extending, prevent any damage being done to the clutches or gearing. As soon as the clutches are opposite each other, the springs immediately draw them into engagement. It will be observed that the levers T1 are pulled against the stops V1 by the springs, so that the joint Q is always returned to its normal position.

A separate hand lever V operates the reverse through the bell crank W and the connecting rod and lever coupled up to eccentrically-carried shaft G1. When lever

V is drawn back, it causes the idle wheel A1 to mesh with the wheels I and F. It is necessary to note that the lever X must be in its middle position before reverse lever V is moved backwards.

Fig. 1 shows section of Chassis at Gear Box and Change Speed Levers.

Fig. 2 shows plan of Gear Box and Levers.

Fig. 3 is an enlarged view of the Flexible Lever O.

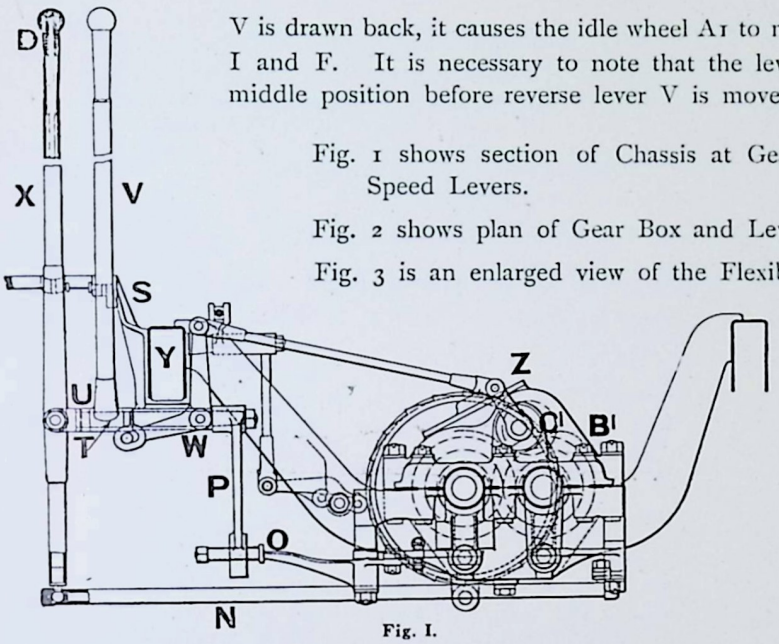



Fig. 1.

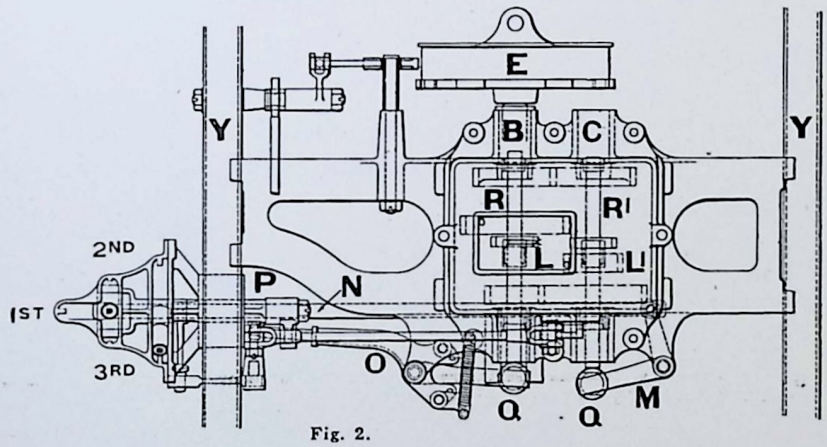



Fig. 2.

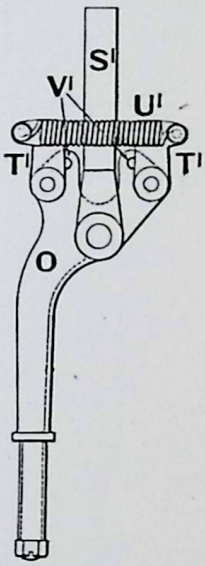



Fig. 3.

**B** Main Shaft.
**C** Countershaft.
**E** Brake Drum and Sprag.
**L** Actuating Fork (Main Shaft).
**M** 1st Speed Bell Crank.
**N** 1st Speed Connecting Rod.
**O** 2nd and 3rd Speed Bell Crank.
**P** 2nd and 3rd Speed Connecting Rod.
**Q** Sliding Pivots.
**R** Actuating Shaft (Main).
**S** Quadrant.
**T** Rocking Shaft.
**U** Rocking Shaft Fork.
**V** Reversing Lever.
**W** Reversing Bell Crank.
**X** 1st, 2nd, and 3rd Change Speed Lever.
**Y** Frame.
**Z** Gear Box Inspection Door.
**C1** Reversing Spindle.
**L1** Actuating Fork, Countershaft.
**R1** Actuating Shaft (Counter).
**S1** Actuating Spring Lever.
**T1** Spring Links.
**U1** Spring.
**V1** Spring Link Stops.

# Argyll Back Axle.

## 14-16 H.P. *MODEL-DE-LUXE.*

THE back axle is, after the engine, the most vital part of car—this being more specially the case in a car of the live axle type. It must be designed so that there is ample strength to withstand all shocks to which it is subjected owing to roughness of the roads.

The Argyll back axle for 1908 is similar in outward appearance to that of 1907, but there have been several alterations internally towards making it still more perfect. The best and most suitable materials have been retained in use, and every part is made of ample proportions.

The axle shafts are of the finest nickel steel, while the gears are made of another class of special steel. All wearing parts in the axle are case-hardened, and afterwards ground to size by special machinery. Extra large ball bearings are provided, reducing friction to a minimum.

The differential consists of a crosshead J, carrying four differential pinions I set between, and gearing with the bevel wheels L on the inner end of the axle shaft D; the whole differential being enclosed in the differential casing M, which is constructed of drop forgings, accurately machined and bolted together.

The driving wheel B is a separate drop forging of special steel, bolted to the differential casing, the teeth of this driving wheel being accurately machined and then hardened by special process; the pinion O which gears with it is treated in a similar manner, the wheel and pinion then being ground into one another to obtain perfectly fitting teeth.

The cone casings C are extended on both sides to carry the hubs of the road wheels, these revolving on the ball bearings P1. Provision is made for lubricating these bearings from the outside, grease being forced through the holes drilled in the outer end of the hub.

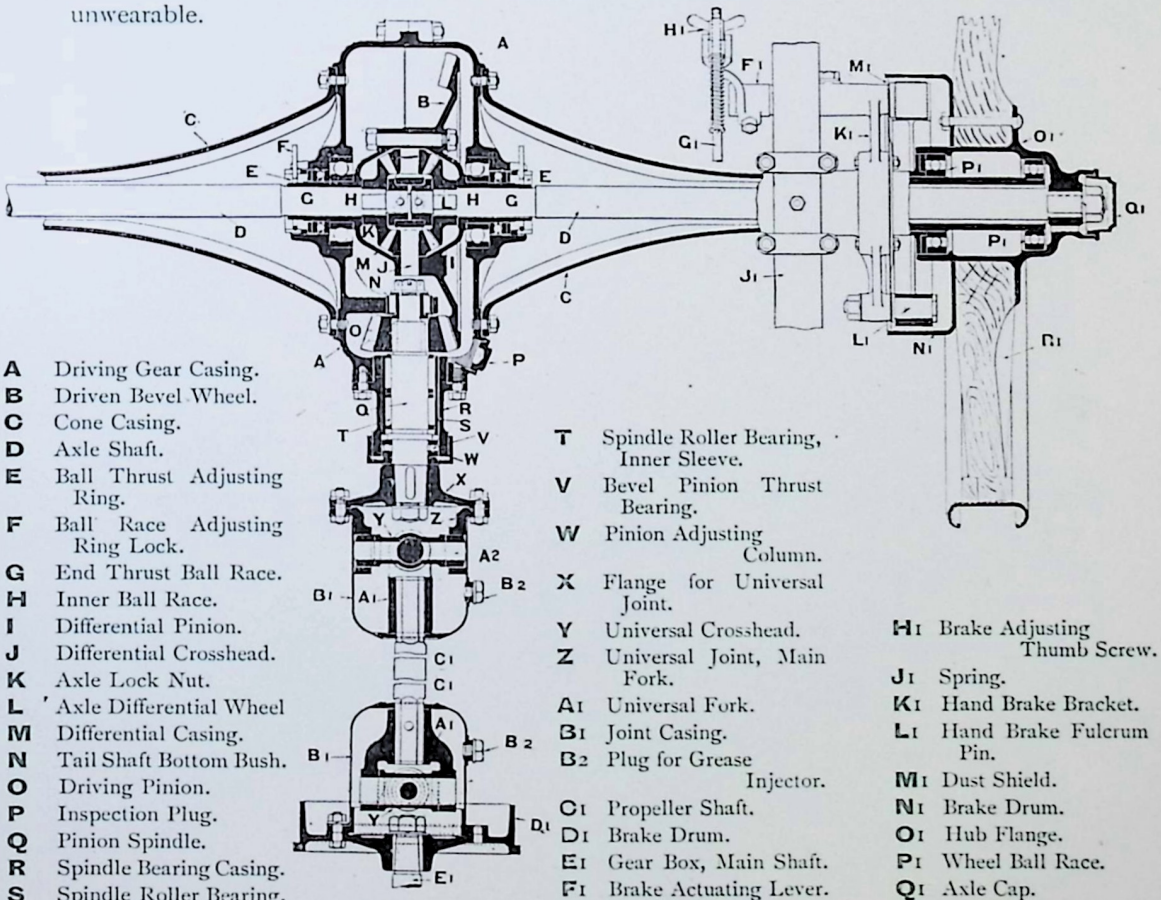
The brake drum is a stamped steel plate bolted to the hub, and the brake shoes are of the internal expanding type operated by a cam, these being carefully protected from dirt and grit.

The thrust of the road wheels is taken up by the ball thrust bearings G.

The outer casing is of exceptionally strong construction, and is so designed as to be capable of taking any load that may come upon it without yielding; its construction is such as ensures the free running of the driving portions even over the roughest roads, no strains due to the weight of the car being transmitted to the

shafts. A large inspection door in case A (not shown on the drawing) permits of easy access to the gear. The motion is transmitted to the axle by way of the universal joint on the foot brake drum D1, the cardan shaft C1, and the second universal joint A1. These joints have extra large bearing surfaces, and are enclosed in dust and grease-proof covers, which are fitted with nipples to suit the grease injector. The pinion spindle Q is carried on a roller bearing T, the inner end being steadied by the roller bearing N. The end thrust of the bevel pinion O is taken by the ball thrust V.

The special claims of this back axle may be stated as:—The wheels running on the axle casing, and no strains due to the weight of the car are transmitted to the axle. All the parts are made of exceptional strength, and from material best suited to the work it has to perform. All wearing parts are case-hardened and practically unwearable.




A Driving Gear Casing.
B Driven Bevel Wheel.
C Cone Casing.
D Axle Shaft.
E Ball Thrust Adjusting Ring.
F Ball Race Adjusting Ring Lock.
G End Thrust Ball Race.
H Inner Ball Race.
I Differential Pinion.
J Differential Crosshead.
K Axle Lock Nut.
L Axle Differential Wheel
M Differential Casing.
N Tail Shaft Bottom Bush.
O Driving Pinion.
P Inspection Plug.
Q Pinion Spindle.
R Spindle Bearing Casing.
S Spindle Roller Bearing, Outer Sleeve.

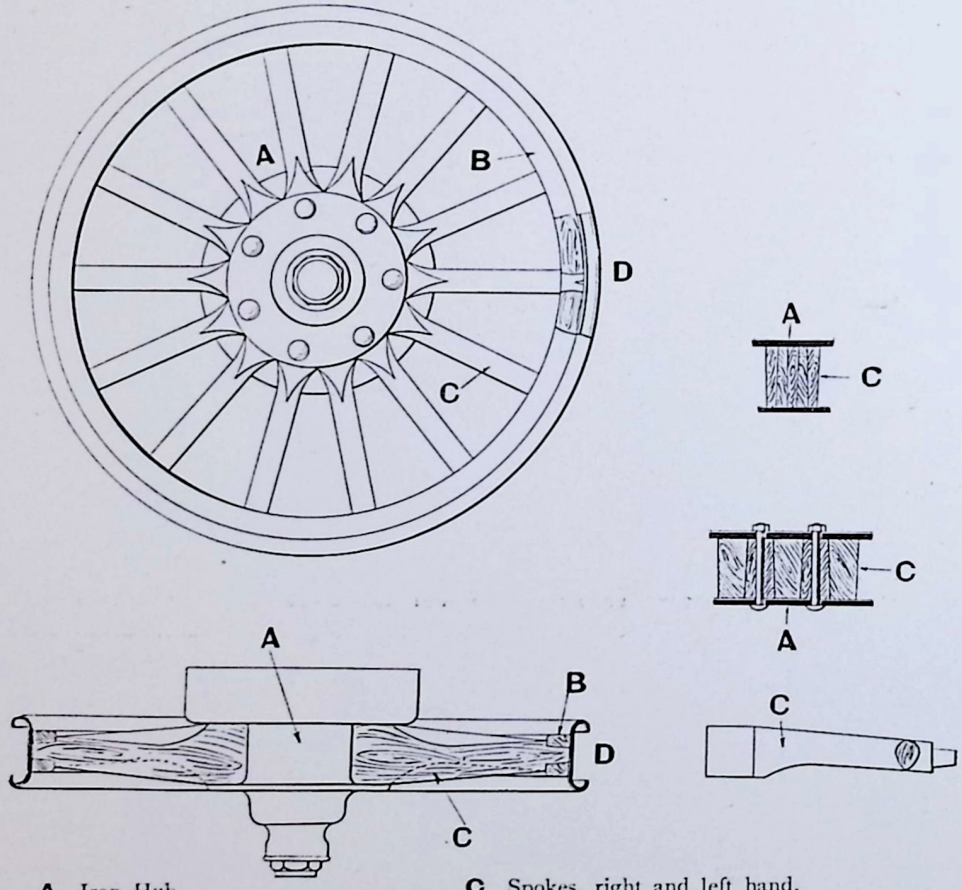
T Spindle Roller Bearing, Inner Sleeve.
V Bevel Pinion Thrust Bearing.
W Pinion Adjusting Column.
X Flange for Universal Joint.
Y Universal Crosshead.
Z Universal Joint, Main Fork.
A1 Universal Fork.
B1 Joint Casing.
B2 Plug for Grease Injector.
C1 Propeller Shaft.
D1 Brake Drum.
E1 Gear Box, Main Shaft.
F1 Brake Actuating Lever.
G1 Brake Connecting Rod.

H1 Brake Adjusting Thumb Screw.
J1 Spring.
K1 Hand Brake Bracket.
L1 Hand Brake Fulcrum Pin.
M1 Dust Shield.
N1 Brake Drum.
O1 Hub Flange.
P1 Wheel Ball Race.
Q1 Axle Cap.
R1 Road Wheel.

# Staggered Spoke Road Wheel.

DEMAND has been made for a road wheel which will be at once light and yet strong, especially against collapse laterally under the stresses due to heavy side slips or running the car against a kerb. To meet these requirements the staggered spoke wheel has been adopted, and the accompanying illustration gives a good idea of the construction.

As will readily be seen, the outstanding difference between it and the ordinary road wheel is that the spokes, instead of all being in one plane, are staggered. The end of each spoke is tenoned into the middle of the felloe, but, on approaching the wheel centre, the spokes alternately pass to the right and left of the middle of the




**A** Iron Hub.
**B** Wheel Felloe.
**C** Spokes, right and left hand.
**D** Steel Tyre Rim.

hub; so that the felloes are in effect supported by two sets of spokes acting as struts, these being set at an angle against each other, so making it impossible for the felloe to become displaced laterally without breaking one set.

Another and important advantage secured by the use of this design of wheel is the facility with which slackness may be taken up, such slackness being due to shrinkage of the timber in tropical countries.

As may be observed from the detail of the jointing, the ends of adjoining spokes are tapered in opposite directions. To tighten the wheel, therefore, all that is necessary is to draw the hub flanges closer together; the effect of this is to slightly lessen the angle of the spokes to the vertical, and thereby increase their effective length, so tightening the spokes and felloes against the iron rim.

In the common form of artillery wheel this is quite impossible, and any slackness that may develop can only be got rid of by rebuilding; and the ease with which this wheel can be tightened, or, if need be, repaired, is one of its strong points which is sure to commend it to all motorists. These wheels are built of the best seasoned oak spokes and ash felloes, and have been tested by Messrs. Kirkcaldy & Son, London, the well-known experts in strengths of material, who report that, while the average lateral load causing collapse of the ordinary artillery type wheel as formerly fitted was 31 cwts., the new wheel stood a load of 69 cwts., similarly applied, before giving way.

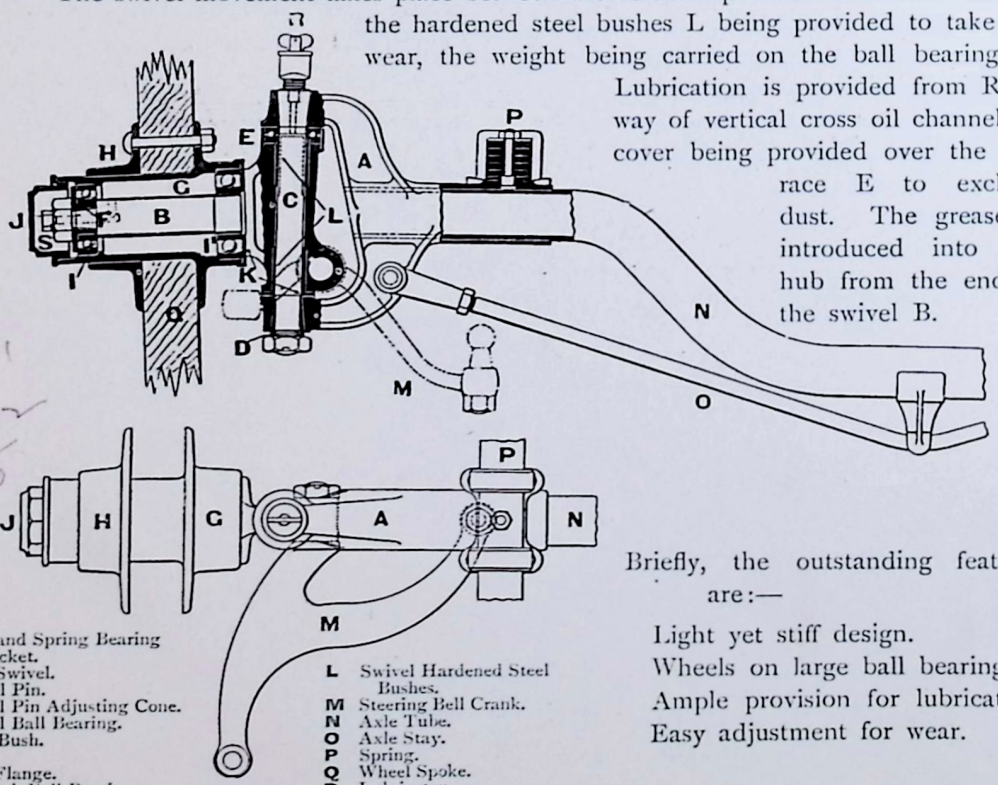
These wheels are of special utility for cars to be used in hot climates, where, despite the fact that only the finest seasoned timber is used, difficulty is sometimes experienced in preventing wheels from giving out, owing to the heat causing excessive shrinkage.

# Argyll Front Axle.

## 14-16 H.P. CHASSIS.

THE front axle is a component of the chassis which, in designing, requires close consideration owing to the severe shocks which it has to withstand. It is a part where stiffness is required without undue weight. This is secured by the use of a weldless steel tube N, pressed to shape by special machinery and rigidly braced by tie rod O. A steel casting A is securely attached to each end of tube N, this casting being formed with jaws to receive the swivels carrying the road wheels. The hub spindle B is machined from a steel stamping, and the wheel hub is carried on this by the ball bearings I and I1. These latter are of well-known manufacture; the balls are of large diameter, and run in steel races of highest quality; between each pair of balls is placed a small spring to keep them apart and to form a cushion capable of yielding slightly, and so allowing of the balls revolving more readily with no possibility of jamming. The space G within the hub is filled with grease, so ensuring perfect lubrication. A steel dust cap K prevents this grease from escaping, and takes any side thrust that may come on the wheel.

The swivel movement takes place between the vertical spindle C and the swivel B, the hardened steel bushes L being provided to take the wear, the weight being carried on the ball bearing E. Lubrication is provided from R by way of vertical cross oil channels, a cover being provided over the ball race E to exclude dust. The grease is introduced into the hub from the end of the swivel B.

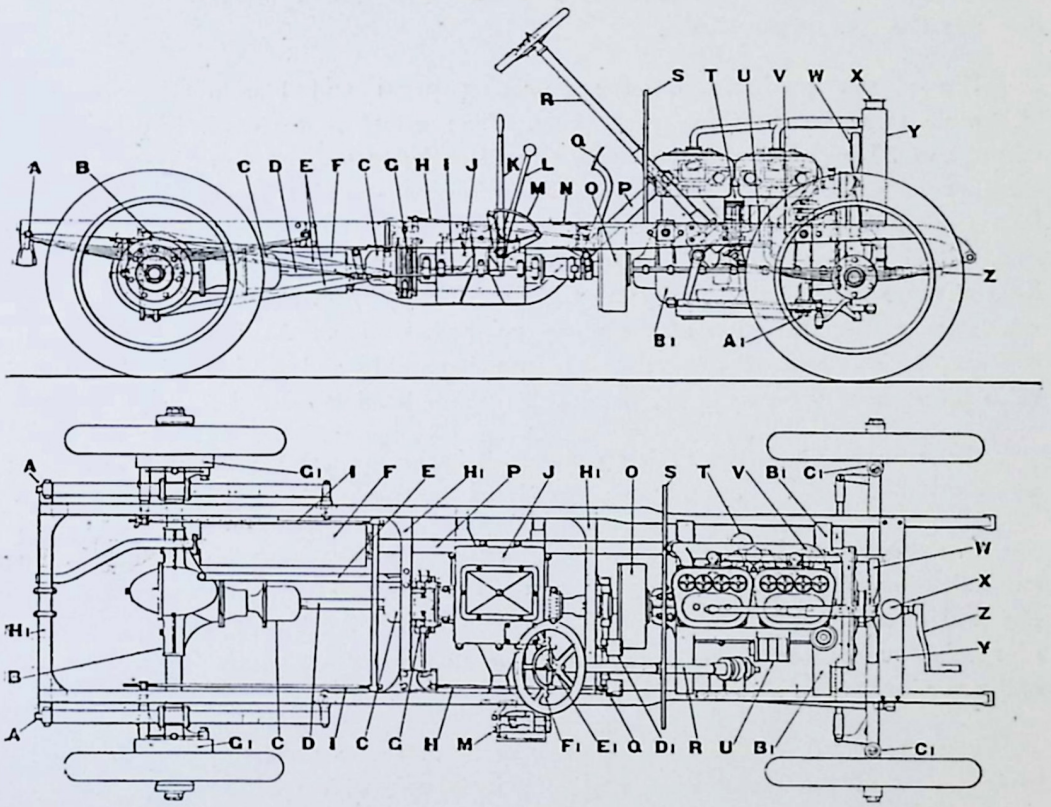



**A** Axle and Spring Bearing Bracket.
**B** Hub Swivel.
**C** Swivel Pin.
**D** Swivel Pin Adjusting Cone.
**E** Swivel Ball Bearing.
**F** Cone Bush.
**G** Hub.
**H** Hub Flange.
**I & I1** Hub Ball Bearings.
**J** Axle Cap.
**K** Dust-proof Cap.
**L** Swivel Hardened Steel Bushes.
**M** Steering Bell Crank.
**N** Axle Tube.
**O** Axle Stay.
**P** Spring.
**Q** Wheel Spoke.
**R** Lubricater.
**S** Extension for Grease Injector.

Briefly, the outstanding features are:—

Light yet stiff design.
Wheels on large ball bearings.
Ample provision for lubrication.
Easy adjustment for wear.

# 40 H.P. Argyll Chassis.




**A** Spring Shackles.
**B** Back Axle Gear Casing.
**C** Universal Joint Casing.
**D** Propeller Shaft.
**E** Torque Rod.
**F** Silencer.
**G** Foot Brake and Sprag.
**H** Foot Brake Pull Rod.
**I** Back Brake Pull Rod.
**J** Change Speed Gear Box.
**K** Hand Brake Lever.
**L** Change Speed Lever.
**M** Change Speed Quadrant.
**N** Frame Longitudinal Runner.
**O** Flywheel and Clutch.
**P** Exhaust Pipe.
**Q** Foot Brake Pedal.
**R** Steering Pillar.
**S** Dashboard.
**T** Carburettor.
**U** Magneto.
**V** Water Circulating Pump.
**W** Fan.
**X** Radiator Water Filler.
**Y** Radiator.
**Z** Starting Handle.
**A1** Oil Pump.
**B1** Engine Crank Case.
**C1** Steering Pivots.
**D1** Clutch Pedal.
**E1** Throttle Control Lever.
**F1** Ignition Control Lever.
**G1** Internal Back Brake.
**H1** Frame Crossbar.

# 40 H.P. Argyll Engine.

THE 40 H.P. Argyll engine is of entirely new design, and manufactured in every detail at the Alexandria Works.

The photos produced on the preceding pages and line drawings opposite will serve to make clear the description. The cylinders are carefully proportioned castings, and have a smart appearance, as well as being well up to their work. They are cast in pairs, having the valves all on the left-hand side of the engine, the inlets being together, with a common intake C from the carburettor on the under side. The exhaust valves are placed one in front and one behind the inlets, and have separate outlets; this arrangement giving an even temperature round the exhaust valves, preventing distortion of the valves or their seating. As is usual with Argyll engines, the inlet and exhaust valves are interchangeable, and are operated by vertical valve lifters from the cam shaft, running in special bearing metal bushes.

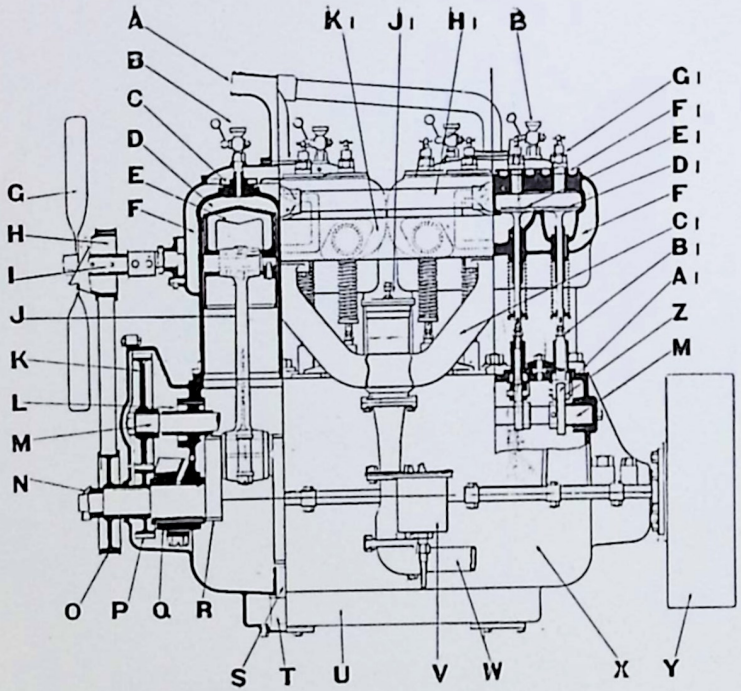
The case in which the timing pump and magneto gears are enclosed is oil-tight and dust-proof, and constructed so as to give a maximum of accessibility.

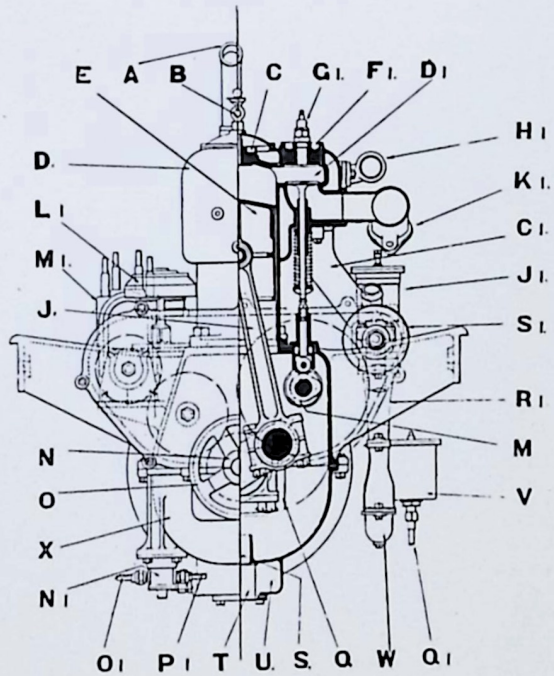
The crank case is of specially strong design, providing for a large centre bearing and extra long bearings at the outer ends. The bushes of the connecting rod large end and crank shaft bearings are of phosphor-bronze, lined with anti-friction metal of special quality for high-speed work; this metal wearing much longer than the ordinary phosphor-bronze.

The upper half of the crank case is designed to be absolutely rigid in respect to alignment of the crank shaft bearings; it is cast with specially strong carrying arms, which are bolted to the side members of the frame, no auxiliary runners being used.

The engine is arranged with the water circulating pump and carburettor on the valve side, the magneto, commutator, and oil pump being on the other — this arrangement giving the engine a well-balanced appearance. The commutator is driven by screw gear from the magneto driving shaft, the spindle being carried through to the under side of the casing for the oil pump.

The whole appearance of the engine and the gear is very pleasing, and, inspecting it when fitted to the chassis, everything necessary is there, and yet nothing is crowded, this being a great feature in point of view of accessibility.




**A** Water Outlet to Radiator.
**B** Compression Tap.
**C** Cylinder Plug.
**D** Cylinder.
**E** Piston.
**F** Water Jacket.
**G** Fan.
**H** Fan Driving Pulley.
**I** Fan Spindle.
**J** Connecting Rod.
**K** Half Time Wheel.
**L** Cam Shaft Bearing.
**M** Cam Shaft.
**N** Starting Clutch on Main Shaft.
**O** Fan Pulley on Main Shaft.

**P** Main Shaft Timing Wheel.
**Q** Crank Shaft Bearing Covers
**R** Crank Shaft.
**S** Oil Overflow Tube.
**T** Oil Strainer.
**U** Oil Reservoir.
**V** Carburettor Float Chamber.
**W** Hot Air Pipe to Carburettor.
**X** Crank Case.
**Y** Flyweeel.
**Z** Valve Lifter.
**A1** Valve Lifter Roller.
**B1** Valve Adjusting Pins.
**C1** Inlet Pipe.
**D1** Exhaust Valve.

**E1** Inlet Valve.
**F1** Valve Plug.
**G1** Sparking Plug.
**H1** Water Circulating Pipe.
**J1** Carburettor and Throttle.
**K1** Exhaust Pipe.
**L1** Commutator.
**M1** Magneto.
**N1** Oil Pump.
**O1** Oil Suction Pipe.
**P1** Oil Delivery Pipe.
**Q1** Petrol Inlet.
**R1** Carburettor Pivot Tube.
**S1** Water Circulating Pump.

The position of magneto and commutator lend themselves to neat arrangement of the ignition control connections; the same falling to be said of the throttle actuating arrangement, in which case the lever on foot of steering column acts through the secondary lever on a small bracket on engine casing to the bell crank actuating the Argyll combined throttle and carburettor.

No unsightly oil pipes are to be seen, the connections to the pump being below the crank case, the pipes conveying the oil to the bearings being arranged inside. The correct level for the oil, under all conditions, has been determined by experiment, and the height of the tube S is fixed so that any excess of oil flows back into the reservoir U, from where the pump maintains the circulation. It will thus be seen that, as long as there is any oil in the reservoir, the lubrication will be efficient. A sight feed is provided on the dashboard to indicate that the oil pump is working satisfactorily, and that there is ample circulation. A test cock is fitted to the reservoir.

The inlet and exhaust pipes are carefully designed with easy bends—the induction pipe C1 so that each cylinder will get its proper supply of the mixture, and the exhaust pipe K1 so that the waste gases may escape to the silencer without setting up any back pressure.

The cooling is effected with water circulated through a honeycomb radiator by means of the centrifugal pump S1; the radiator being assisted by an efficient fan, belt-driven from the main shaft, which draws air through the radiator.

The ignition is on the high tension system from accumulator, in conjunction with an induction coil; a magneto running at the same speed as the engine also being fitted.

The commutator is specially designed for this engine, and is placed above the magneto driving shaft, from which it is driven by screw gear. This commutator has a specially designed case to hold a supply of light oil, in which the revolving contact maker works, the conditions being such that a gratifying freedom from trouble is experienced.

The control of the engine is effected by a special type throttle, actuated by the friction control levers on the quadrant bracket of steering wheel.

The aim of the designer has been to simplify the engine to the finest point, yet retaining everything necessary to make as perfect and up-to-date a petrol engine as possible.

# Argyll Front Axle.

## 40 H.P. CHASSIS.

THE front axle for the 40 H.P. 1908 car is of a new and unique design. A stamped steel section similar to that of the main frame is used. In this way the maximum efficiency is obtained with a minimum weight, while the appearance is considerably enhanced.

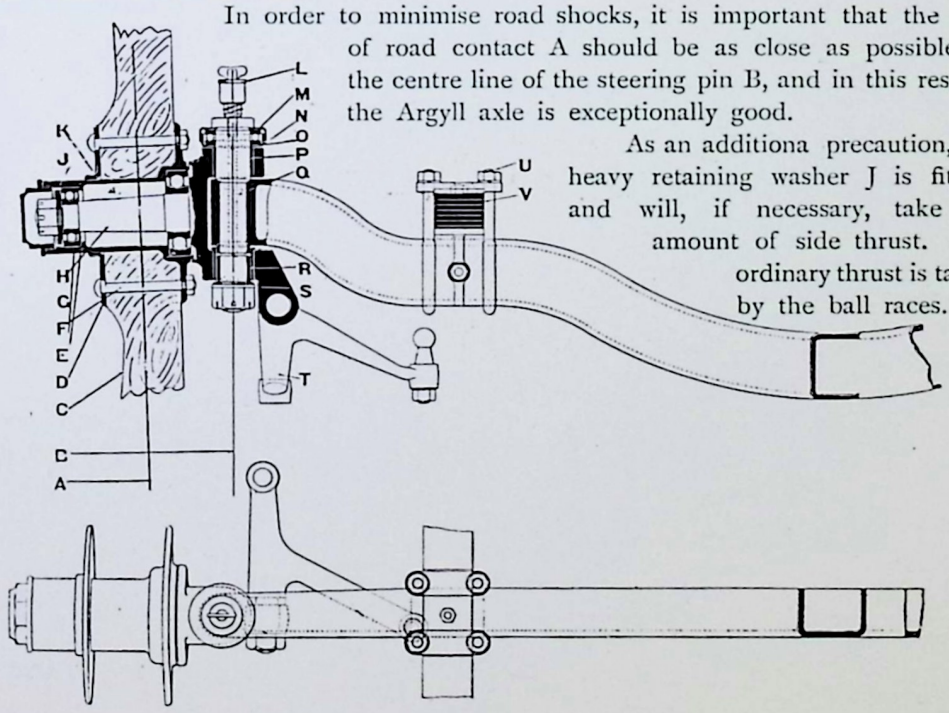
The ends of the axle are forged solid and bored to receive the swivel pin P.

It will be noted that the swivel pin in this axle, in common with others of a similar type, has very short bearings. The feature of the Argyll design is that the twist on the pin is taken at the extreme ends of the bearing by means of adjustable conical surface, thus preventing the pin working slack.

The swivel H runs on hardened steel bushes P and R and is supported by the ball bearing O. This ball bearing runs in a pressed steel cup and is efficiently protected from dust by the cap M. The swivel pin is lubricated by means of the grease cup L and suitable holes drilled through the pin. The front hub E runs on a D.W.M. ball bearing F. The line of road contact passing close to the inner ball race allows a much smaller ball race to be used at the outer end, this ensuring a neat hub and at the same time relieving the swivel from bending strains, to which it would otherwise be subjected.

In order to minimise road shocks, it is important that the line of road contact A should be as close as possible to the centre line of the steering pin B, and in this respect the Argyll axle is exceptionally good.

As an additiona precaution, the heavy retaining washer J is fitted, and will, if necessary, take an amount of side thrust. All ordinary thrust is taken by the ball races.

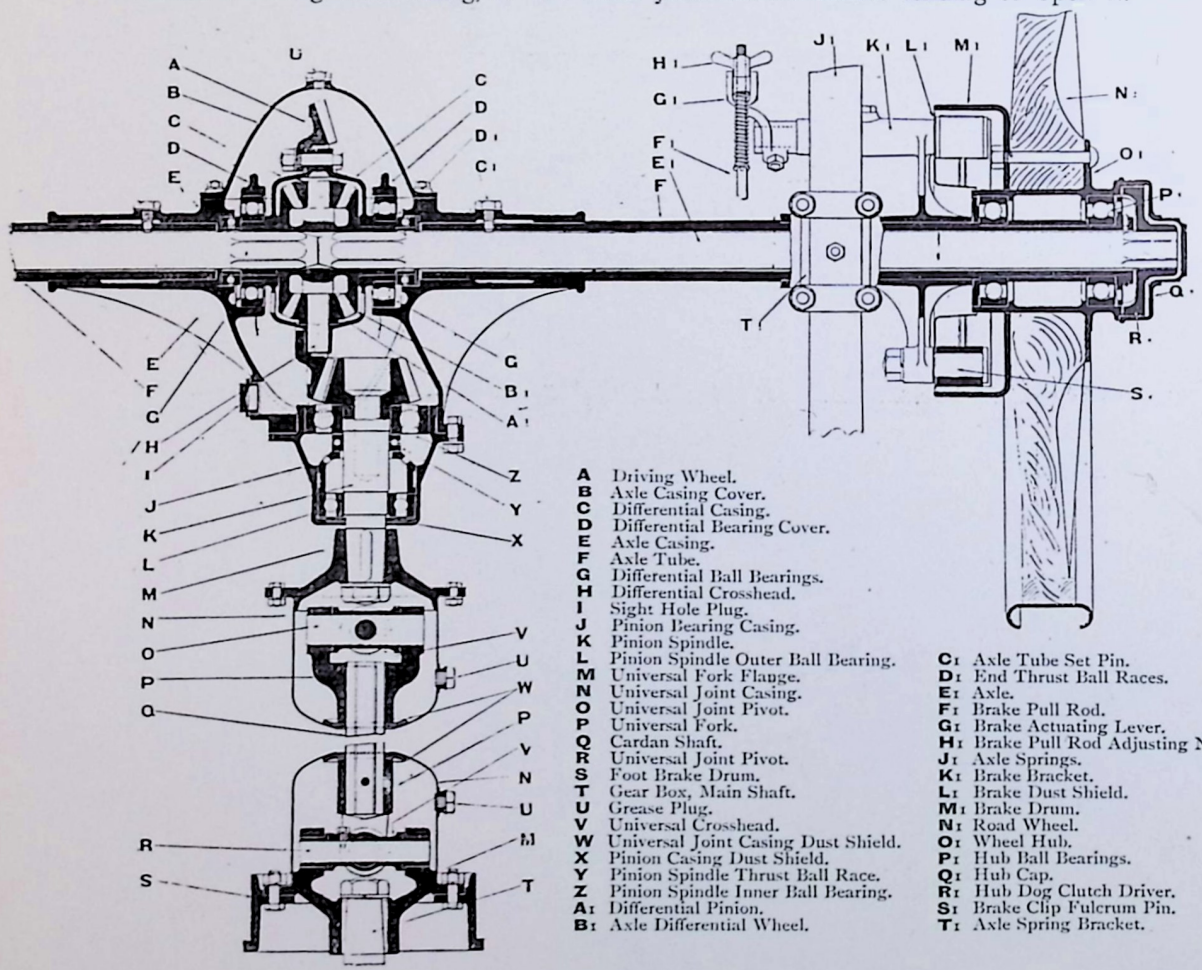


# Argyll Back Axle.

## 40 H.P. CHASSIS.

THE live axle of the 40 H.P. car is of an altogether new design. Instead of having, as in the 14-16 H.P. axle, four castings for the outer casing. this axle is composed of one steel central casting E, with aluminium dust and inspection cover B. The steel extensions F carry the wheel hubs on ball bearings.

There is more than one advantage to be gained from this arrangement—firstly, the central casing is immensely strong, not having to rely on bolts, as in types which are split horizontally or vertically, to keep the two halves together; there is no chance of the grease leaking, as the cover joint has no strains tending to open it.




**A** Driving Wheel.
**B** Axle Casing Cover.
**C** Differential Casing.
**D** Differential Bearing Cover.
**E** Axle Casing.
**F** Axle Tube.
**G** Differential Ball Bearings.
**H** Differential Crosshead.
**I** Sight Hole Plug.
**J** Pinion Bearing Casing.
**K** Pinion Spindle.
**L** Pinion Spindle Outer Ball Bearing.
**M** Universal Fork Flange.
**N** Universal Joint Casing.
**O** Universal Joint Pivot.
**P** Universal Fork.
**Q** Cardan Shaft.
**R** Universal Joint Pivot.
**S** Foot Brake Drum.
**T** Gear Box, Main Shaft.
**U** Grease Plug.
**V** Universal Crosshead.
**W** Universal Joint Casing Dust Shield.
**X** Pinion Casing Dust Shield.
**Y** Pinion Spindle Thrust Ball Race.
**Z** Pinion Spindle Inner Ball Bearing.
**A1** Differential Pinion.
**B1** Axle Differential Wheel.

**C1** Axle Tube Set Pin.
**D1** End Thrust Ball Races.
**E1** Axle.
**F1** Brake Pull Rod.
**G1** Brake Actuating Lever.
**H1** Brake Pull Rod Adjusting Nut.
**J1** Axle Springs.
**K1** Brake Bracket.
**L1** Brake Dust Shield.
**M1** Brake Drum.
**N1** Road Wheel.
**O1** Wheel Hub.
**P1** Hub Ball Bearings.
**Q1** Hub Cap.
**R1** Hub Dog Clutch Driver.
**S1** Brake Clip Fulcrum Pin.
**T1** Axle Spring Bracket.

The whole differential casing C, with the driving wheel A bolted to it, can be withdrawn from the axle casing for examination or repair without having to jack up the wheels. To obtain this end, the caps Q1 are unscrewed and the axle shafts E1 withdrawn a few inches, then the differential bearing ball race covers D, which are held in position by four studs, are removed, and the driving gear can be lifted out for examination.

The driving pinion and spindle K are a solid forging running on extra large ball bearings L and Z, the larger of which is carried close to the point where there is the greatest strain. The thrust is taken on the ball races Y. A sight hole I is provided on main casing, so that the position of the teeth in mesh can be seen when adjusting the bevels. The hubs are running on large ball bearings P1 carried on the tube F, which is fitted into the central casing, this leaving the axle E1 with no strains whatever due to the weight of the car.

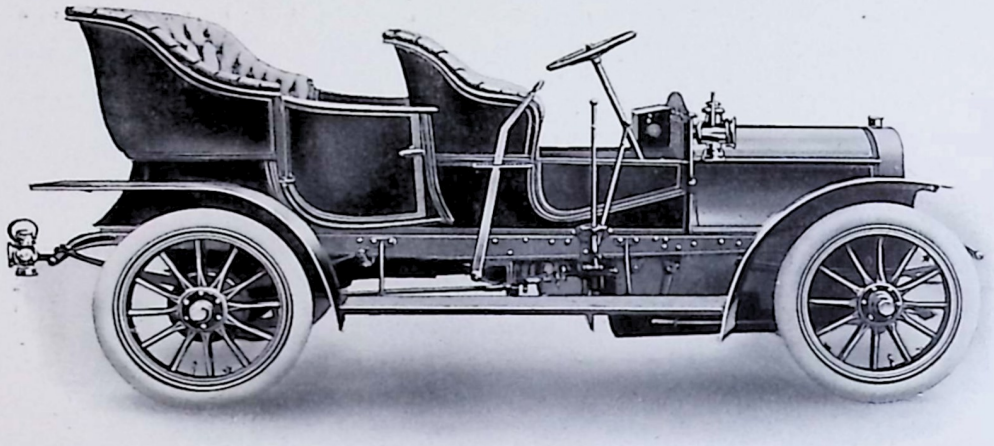
In order to avoid local strains due to heating in the course of a brazing operation, no brazing is resorted to in this design. The tubes F are made a special fit for the sleeves of the main casing; the casing is then heated to a certain temperature and the tubes forced home. On cooling, the contraction of the casing sleeves makes a perfect joint; a substantial stud C1 is then screwed through both tube and casing as a safeguard. The spring bracket T1 is allowed to float on the tube, and a torque rod with double springs to eliminate shocks in starting and stopping is fitted.

The brake bracket, which requires to be a tight fit on the tube, is split and held securely by two bolts, a stud being added to position the bracket at the proper place. A stay (not shown on line print) is carried under the centre casing, being secured at each end to lugs on the brake bracket.

The drive is taken from the gear box through two universal joints and the propeller shaft to the pinion K, thence through the differential crosshead H to the pinion A1, to the differential gear wheels B1, and thence to the axle shafts which are fitted into the suitable holes in the wheel B1 and, at the other end, to the dog clutch in the hub.

It will be noted that the thrust, due to the car swaying, is not transmitted to the differential thrust bearing as in most live axles, but is taken up directly in the specially designed ball bearing at the hub end. All parts are made of the finest material obtainable, being practically unwearable.

# The 12-16 H.P. Argyll Car.



12-16 H.P. Argyll Side Entrance Car, £340.

## SPECIFICATION.

ENGINE.—Aster, four cylinders, 84 m/m bore by 110 m/m stroke, cylinders cast together; inlet and exhaust valves on the same side, mechanically operated.

CARBURETTOR.—Float feed and automatic air inlet.

IGNITION.—High tension, with accumulator. High tension magneto may be fitted at an extra charge.

COOLING.—Specially designed radiator, giving large cooling surface, and fitted with pump and powerful fan, obviating the need for any other water tank.

LUBRICATION.—On the splash system, with pressure drip feed to main bearings.

CLUTCH.—Multiple disc type, running in lubricant.

GEARING.—Govan patent.

SPEEDS.—7, 14, and 28 miles per hour when the engine is running at 1,100 revolutions per minute. This may be accelerated to upwards of 30 miles per hour.

WHEELS.—Patent Artillery pattern, 32 in. diameter, built with staggered spokes to give the greatest possible lateral stability.

TYRES.—Dunlop, Continental, or Michelin, 810 m/m by 90 m/m. Any other type to order.

WHEEL BASE.—Side entrance, 8 ft. 4 in.; track, 4 ft. 1¼ in.; total length, side entrance, 12 ft. 4 in.; total width, 5 ft. 3 in.

STEERING.—Enclosed lock, irreversible pattern.

BACK AXLE.—Enclosed live axle. Bearings are made of the finest steel, carefully ground and hardened; gears all machine-cut.

FRONT AXLE.—Built up front axle, rigidly stayed. Hubs run on large ball bearings.

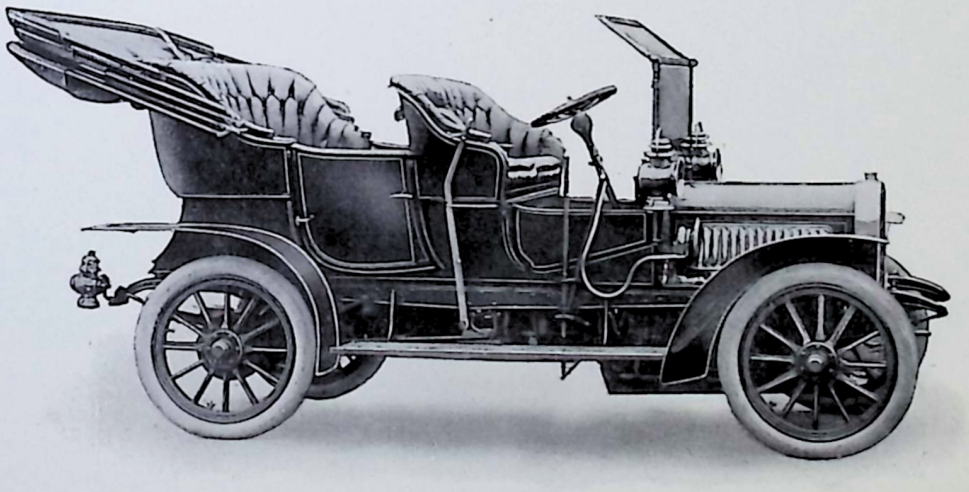
FRAME.—Pressed steel, patent design.

BODY.—Standard pattern side entrance Roi-des-Belges, finished with high-class fittings, upholstered in leather, and having side doors fitted to front seats.

OUTFIT.—A complete equipment (as detailed on page 122) of lamps, mats, horn, tyre pump, screw jack, tools, repair outfit, etc., can be supplied at an extra charge of £11 10s.

PRICE.—Side entrance, including set of spanners, oil can, screw driver, and petrol filler, - - - - - - - - - £340 0 0

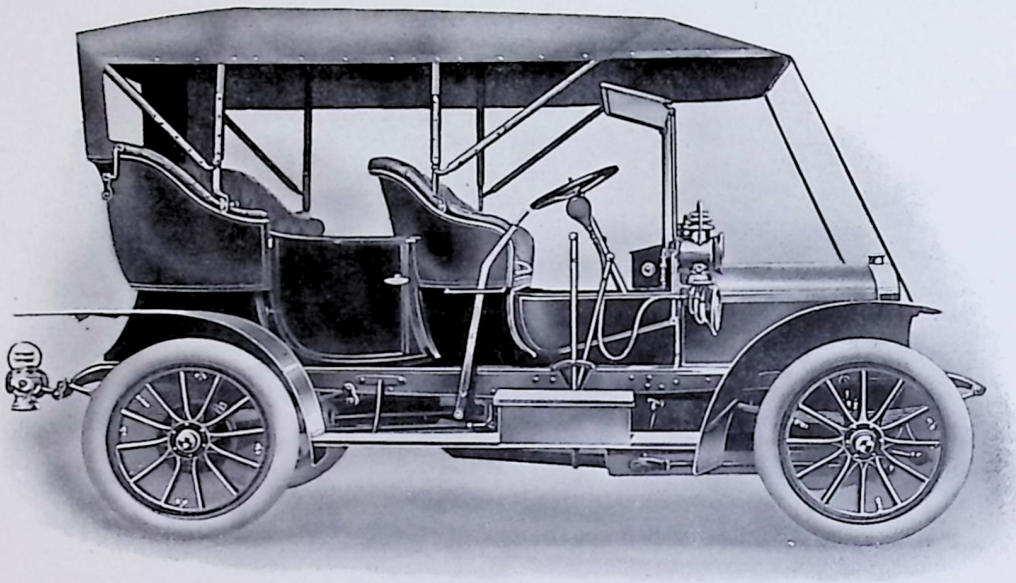
| | | | | |
|---|---|---|---|---|
| Fitted with Magneto, | - - - - - - - - - | extra, | 22 | 10 0 |
| Do. | Canopy and Glass Front, - - - - - - | „ | 30 | 0 0 |
| Do. | Cape Cart Hood, - - - - - - - - | „ | 20 | 0 0 |
| Do. | Folding Wind Screen, - - - - - - - | „ | 8 | 0 0 |



**12-16 H.P. Side Entrance Car with Cape Cart Hood and Folding Glass Screen.**
**Car, £340; Hood, £20; Screen, £8.**

# 14-16 H.P. Argyll Car.

STANDARD MODEL.



**14-16 H.P. Side Entrance Car. Price, £355.**

## SPECIFICATION.

ENGINE.—Argyll, four cylinders, 90 m/m bore by 120 m/m stroke, cylinders cast separately; inlet and exhaust valves on opposite sides, mechanically operated.

CARBURETTOR.—Float feed and automatic air inlet.

IGNITION.—High tension, with accumulator. High tension magneto may be fitted at an extra charge.

COOLING.—Specially designed radiator, giving large cooling surface, and fitted with pump and powerful fan.

LUBRICATION.—On the splash system, with pressure drip feed to main bearings.

CLUTCH.—Multiple disc type, running in lubricant.

GEARING.—Govan patent.

SPEEDS.—7½, 15, and 30 miles per hour when the engine is running at 1,100 revolutions per minute. This may be accelerated to upwards of 32 miles per hour.

WHEELS.—Patent Artillery pattern, 32 in. diameter, built with staggered spokes to give the greatest possible lateral stability.

TYRES.—Dunlop, Continental, or Michelin, 810 m/m by 90 m/m. Any other type to order.

WHEEL BASE.—Side entrance, 8 ft. 4 in.; track, 4 ft. 1¼ in.; total length, side entrance, 12 ft. 4 in.; total width, 5 ft. 3 in.

STEERING.—Enclosed lock, irreversible pattern.

BACK AXLE.—Enclosed live axle. Bearings are made of the finest steel, carefully ground and hardened; gears all machine-cut.

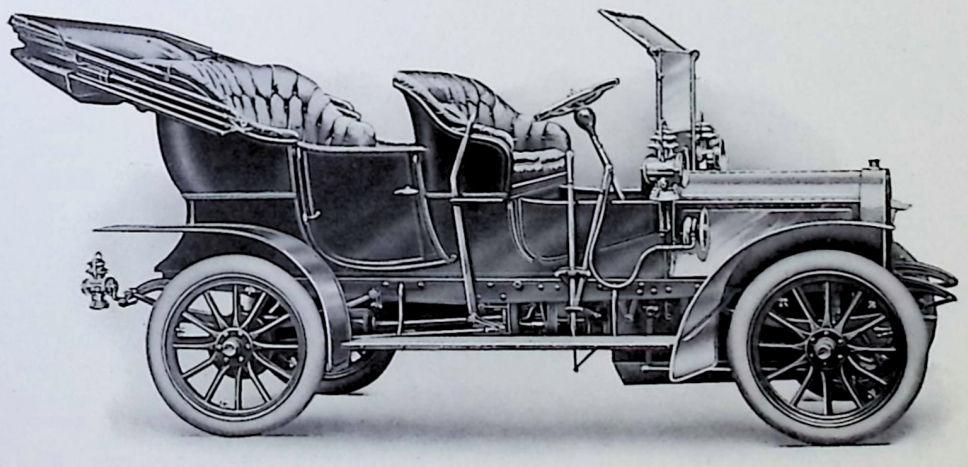
FRONT AXLE.—Built up front axle, rigidly stayed. Hubs run on large ball bearings.

FRAME.—Pressed steel, patent design.

BODY.—Standard pattern side entrance Roi-des-Belges, finished with high-class fittings, upholstered in real leather.

OUTFIT.—A complete equipment (as detailed on page 122) of lamps, mats, horn, tyre pump, screw jack, tools, repair outfit, etc., can be supplied at an extra charge of £11 10s.

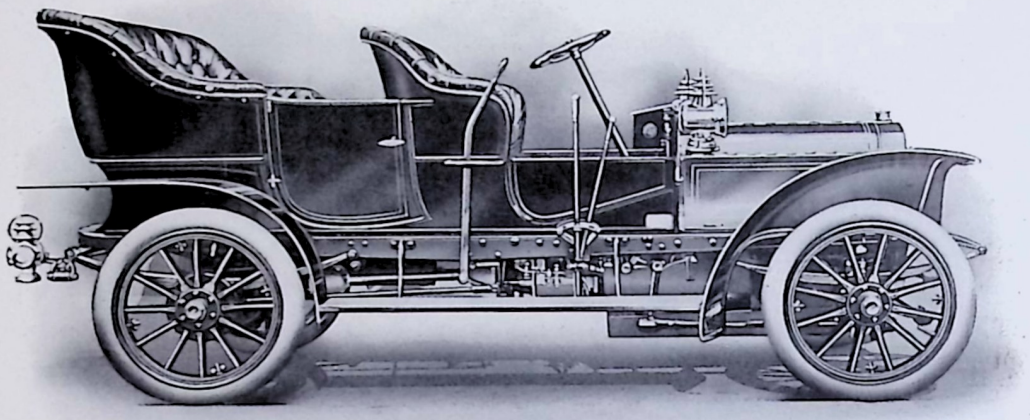
PRICE.—Side entrance, including set of spanners, oil can, screw driver, and petrol filler, - - - - - - - - - £355 0 0
Fitted with Magneto, - - - - - - - - - extra, 25 0 0
Do. Canopy and Glass Front, - - - - - - „ 30 0 0
Do. Cape Cart Hood, - - - - - - - - „ 20 0 0
Do. Folding Wind Screen, - - - - - - - „ 8 0 0



**14-.6 H.P. Side Entrance Car, with Cape Cart Hood and Folding Glass Screen.**
**Car, £355; Hood, £20; Screen, £8.**

# The 14-16 H.P. Argyll Car.

(MODEL-DE-LUXE.)



**14-16 H.P. Model-de-luxe Side Entrance Car, £375.**

## SPECIFICATION.

ENGINE.—Argyll, four cylinders, 90 m/m bore by 120 m/m stroke, cylinders cast separately, inlet and exhaust valves on opposite sides, mechanically operated.

COMBINED THROTTLE AND CARBURETTOR.—Float feed, automatic and mechanical air inlet (Argyll patent).

IGNITION.—High tension with accumulator. High tension magneto may be fitted at an extra charge.

COOLING.—Specially designed radiator, giving large cooling surface, and fitted with pump and powerful fan, obviating the need for any other water tank.

LUBRICATION.—Forced lubrication by gear-driven pump. Discs on crank shaft supplying oil to connecting rod ends.

CLUTCH.—Multiple disc type, running in lubricant.

GEARING.—Govan patent.

SPEEDS.—7½, 15, and 30 miles per hour when the engine is running at 1,100 revolutions per minute. This may be accelerated to upwards of 40 miles per hour.

WHEELS.—Patent Artillery pattern, 32 in. diameter, built with staggered spokes to give the greatest possible lateral stability.

TYRES.—Dunlop, Continental, or Michelin, 810 m/m by 90 m/m. Any other type to order

WHEEL BASE.—8 ft. 4 in.; track, 4 ft. 1¼ in.; total length, 12 ft. 4 in.; total width, 5 ft. 3 in.

STEERING.—Enclosed lock, irreversible pattern.

BACK AXLE.—Enclosed live axle, with wheels carried on sleeves. Ball bearings are made of the finest steel, carefully ground and hardened; gears all machine-cut. Axle shafts free from all road shocks.

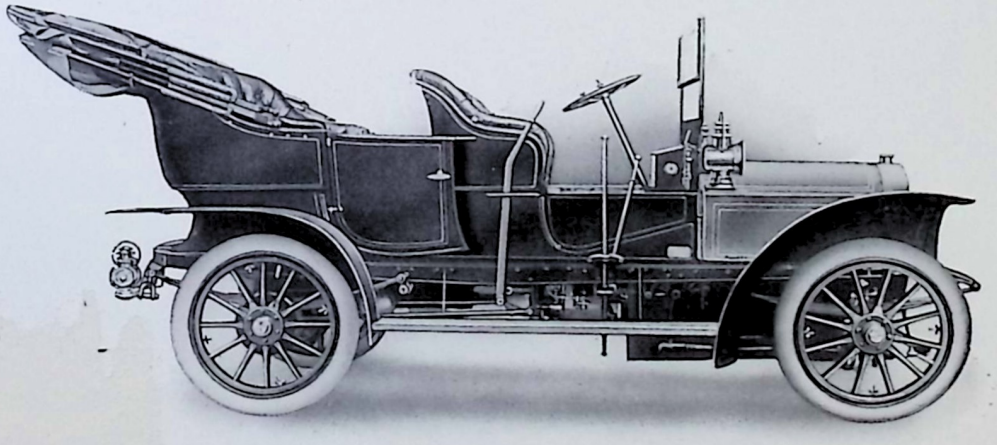
FRONT AXLE.—Built up front axle, rigidly stayed. Hubs run on large ball bearings.

FRAME.—Pressed steel, patent design.

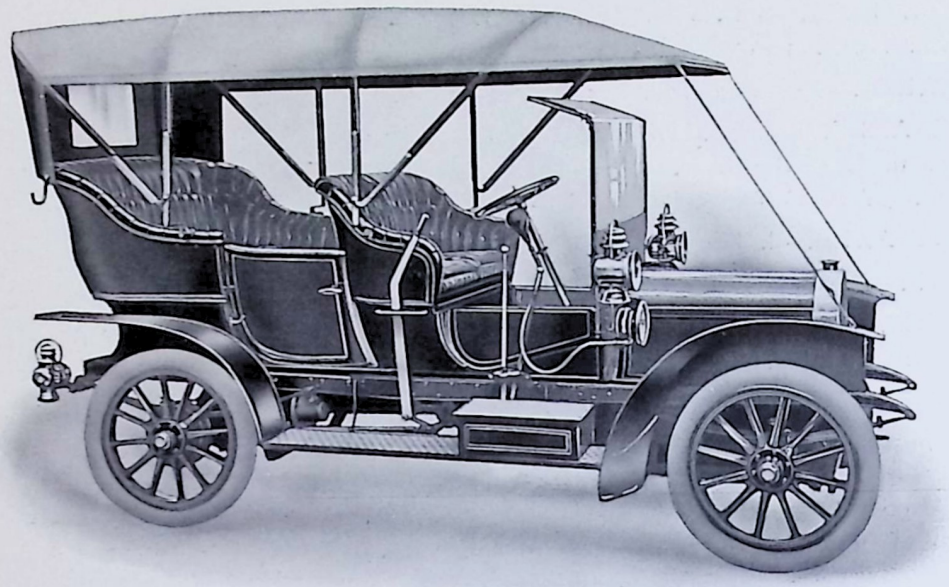
SPRINGS.—Long and of ample width, giving remarkably easy running. A transverse spring is fitted.

BODY.—The body is an improved Roi-des-Belges side entrance design, and is framed in specially selected seasoned timber, with pressed steel bends neatly bound with solid mouldings. A bucket seat division is provided in the front seat, as also foot doors. The side doors are fitted with patent slam locks; the tool cupboard opens from behind. The long side platforms are covered with rubber, and edged with brass angle plate. The body is trimmed throughout in best cross-grained buffalo leather, all neatly quilted over springs and stuffed with horse hair. It has full roll tops all round, and pockets are fitted to doors. It is painted, picked out, fine lined, and varnished in the best possible style.

OUTFIT.—A complete equipment (as detailed on page 122) of lamps, mats, horn, tyre pump, screw jack, tools, repair outfit, etc., can be supplied at an extra charge of £11 10s.



16 H.P. Four-Cylinder Car, with Cape Cart Hood and Folding Glass Screen.
Car, £375; Hood, £20; Screen, £8.



14-16 H.P. Model-de-luxe Side Entrance Car, fitted with Hood and Screen.

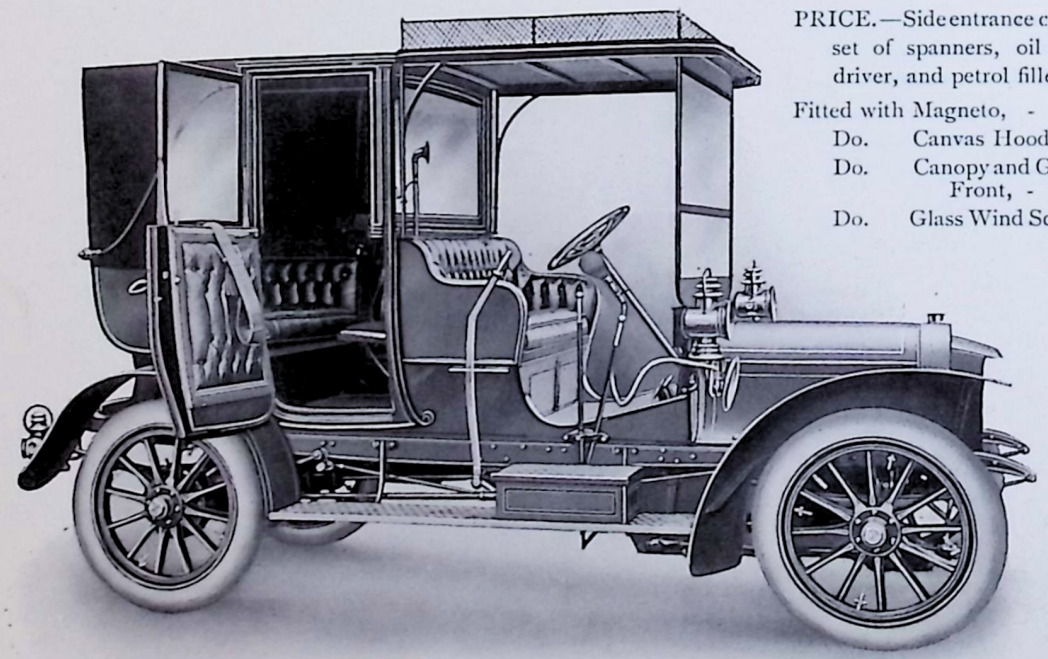
PRICE.—Side entrance car, including set of spanners, oil can, screw driver, and petrol filler, - £375

Fitted with Magneto, - extra, 25

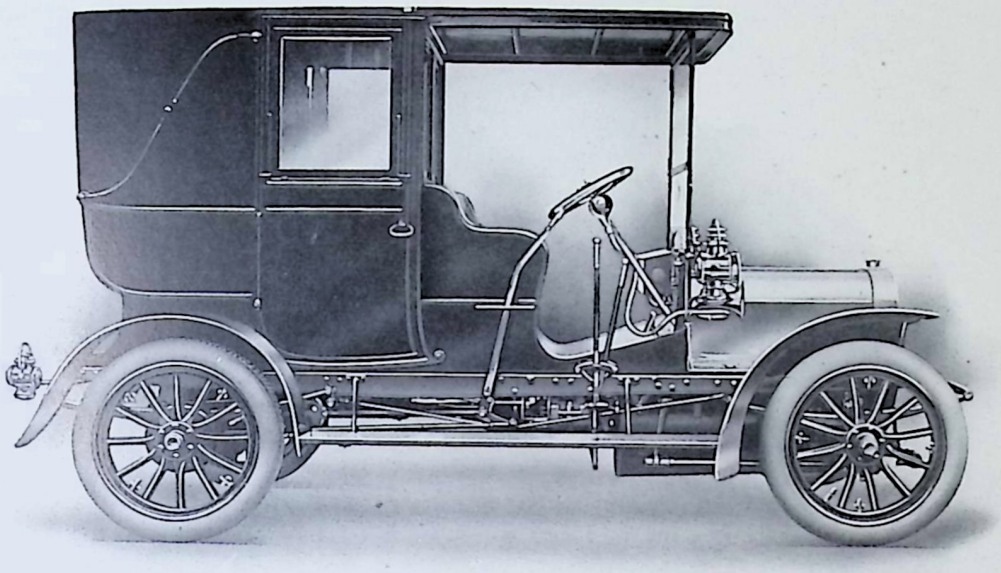
Do. Canvas Hood, ,, 20

Do. Canopy and Glass Front, - ,, 32

Do. Glass Wind Screen, ,, 8



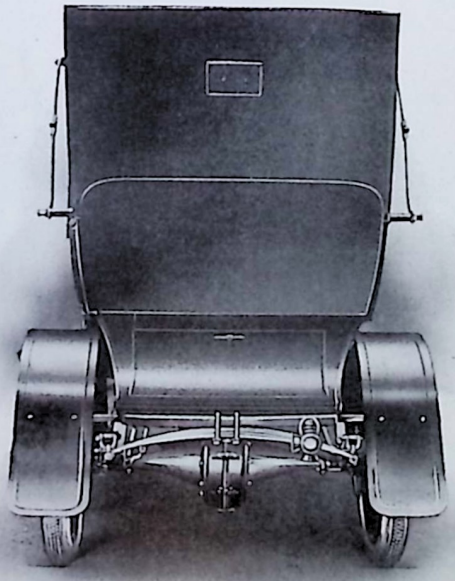
14-16 H.P. Single Landaulet. Door open, showing Interior.



**Argyll Single Landaulet—Side View.**

| | | | |
|---|---|---|---|
| WHEEL BASE, - - - | 9 ft. 0 in. | TOTAL BREADTH, - - | 5 ft. 3 in. |
| WHEEL TRACK, . - | 4 ft. 1¼ in. | TOTAL HEIGHT, - - | 7 ft. 3 in. |
| TOTAL LENGTH, - - | 13 ft. 0 in. | TOP GEAR, in Miles per Hour, - - | 27 |

BODY SPECIFICATION.—This body is of an entirely new design, and marks an advance in landaulet building. It is built with the best mahogany carriage panels, with fixed front pillars and extension over driving seat, with folding wind screen having polished mahogany framing, or, alternatively, with folding front pillars and detachable extension and wind screen. The driving seat is of the semi-bucket type, and is upholstered in the best buffalo leather. The polished mahogany glass frames all drop, and folding window frame supports are fitted to the doors. The tool cupboard opens from behind, slam locks are fitted, and the long side platforms are covered with rubber and bound with brass angle plate. The patent folding head is covered with the best enamelled leather; the interior is trimmed in the finest morocco or carriage cloth, and finished with silk laces and pile carpet to match. Pockets are fitted in doors, also the usual trays and cigar racks. The body is painted, fine lined, varnished, and finished throughout in the best style.

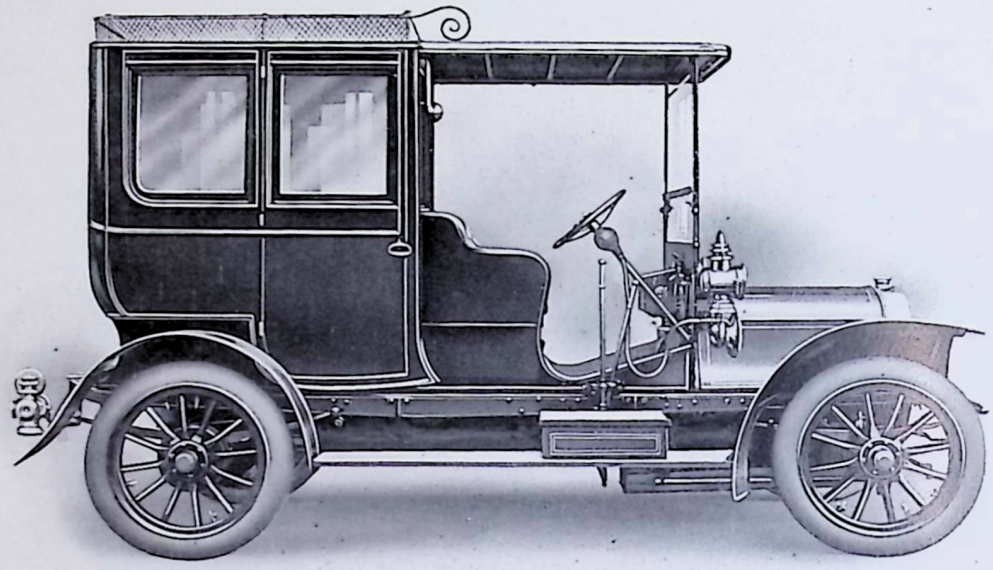


**Rear View of Landaulet.**

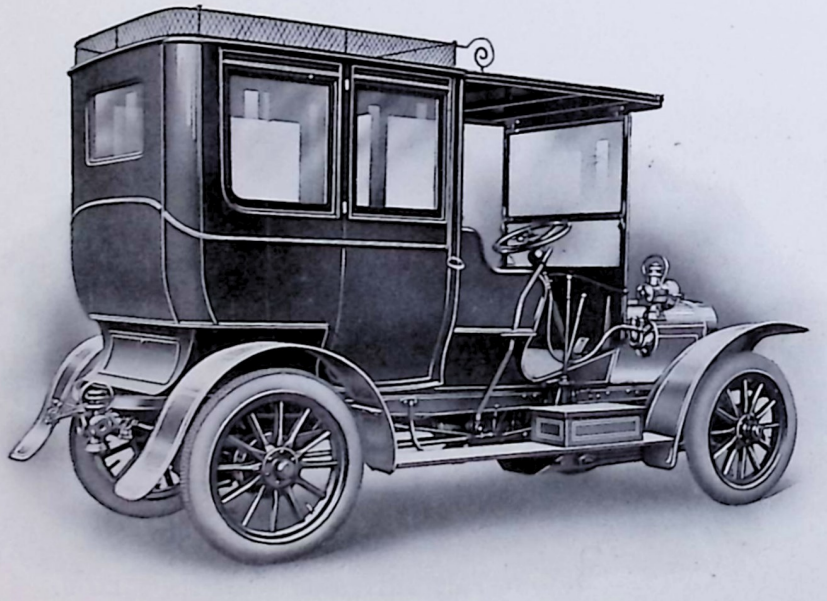
PRICE.

14-16 H.P. *Model-de-luxe* Single Landaulet, with Fixed Pillars and Roof Extension, and Glass Wind Screen, - - - - - - - £495

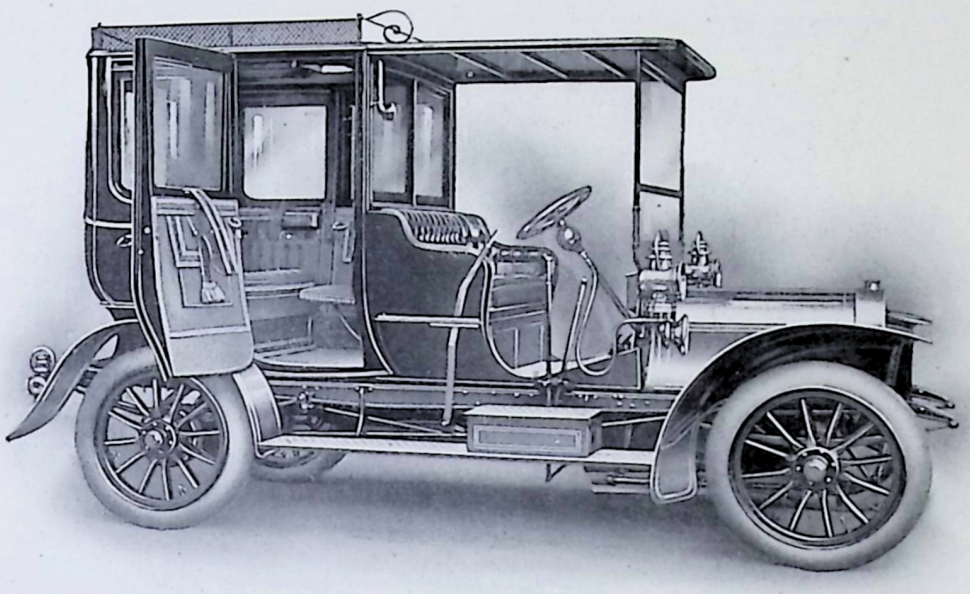
14-16 H.P. *Model-de-luxe* Single Landaulet, with Folding Pillars and Detachable Extension, and Wind Screen, - - - - - - 510



14-16 H.P. Model-de-luxe Chassis with Limousine Body, £520.

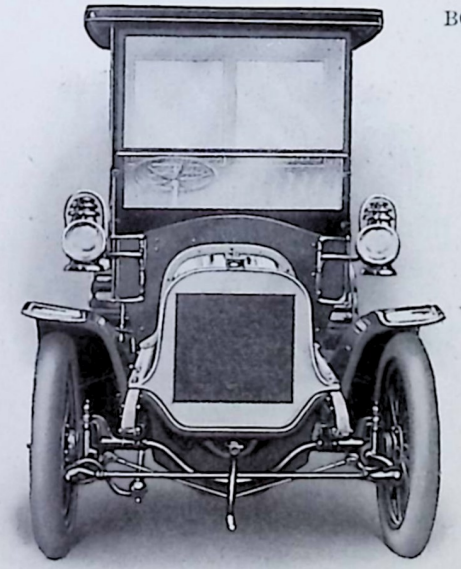


Argyll 14-16 H.P. Limousine—Quarter Back View, showing Large Rear Window.



**14-16 H.P. Model-de-luxe Chassis with Limousine Body. Price, £520.**

| | | | |
|---|---|---|---|
| WHEEL BASE, - - - | 9 ft. 0 in. | TOTAL BREADTH, - - | 5 ft. 3 in. |
| WHEEL TRACK, - - | 4 ft. 1¼ in. | TOTAL HEIGHT, - - | 7 ft. 3 in. |
| TOTAL LENGTH, - - | 13 ft. 0 in. | TOP GEAR, in Miles per Hour, - - | 27 |



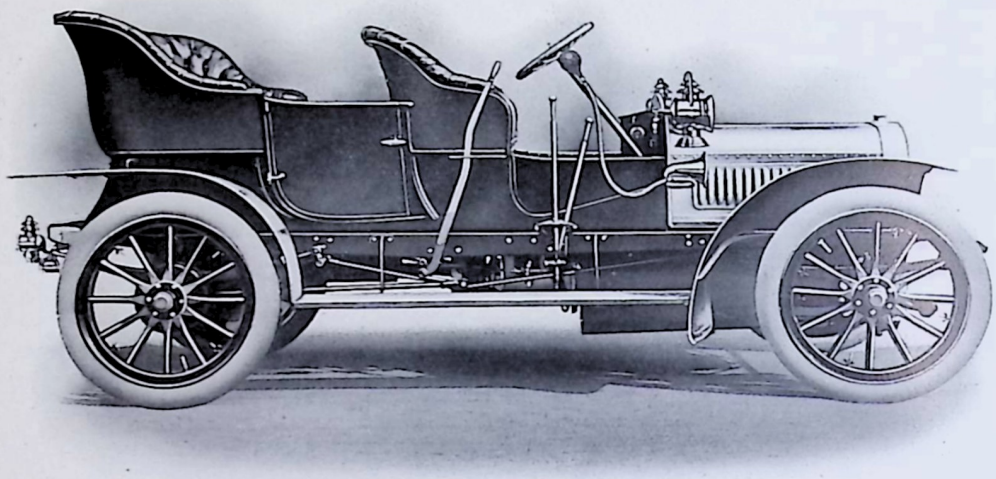
**Front View 14-16 H.P. Limousine or Landaulet.**

BODY SPECIFICATION.—This body is of the latest design, being built with extension over driving seat, and folding wind screen having polished mahogany frame. The driving seat is semi-bucket type, and is finished in buffalo leather. The body is built with best mahogany carriage panels, and the polished glass frames all drop. The tool cupboard opens from behind, slam locks are fitted to the doors, and the long side platforms are covered with rubber and edged with brass angle plate. The interior is trimmed in ribbed cloth or morocco as may be required, having silk curtains, laces, and pile carpet to match. Pockets to doors are provided; also hat cords, net rack, glove tray and mirror, card case, cigar rack; speaking tube and electric lights can be fitted. The body is painted, lined round mouldings, and finished in the highest class carriage style.

PRICE.

| | |
|---|---|
| 14-16 H.P. *Model-de-luxe* Chassis, with Limousine Body, - - - - - - - - - | £520 |
| Chassis Price, - - - - - - - - - | 340 |

# 16-20 H.P. Argyll Car.



16-20 H.P. Standard Side Entrance Car. £450.

## SPECIFICATION.

ENGINE.—Aster, four cylinders, 95 m/m bore by 130 m/m stroke, cylinders cast separately; inlet and exhaust valves on opposite sides, mechanically operated.

CARBURETTOR AND THROTTLE.—Argyll, float feed, with automatic and mechanical air inlet.

IGNITION.—High tension, with accumulator. High tension magneto may be fitted at an extra charge.

COOLING.—Specially designed radiator, giving large cooling surface, and fitted with pump and powerful fan, obviating the need for any other water tank.

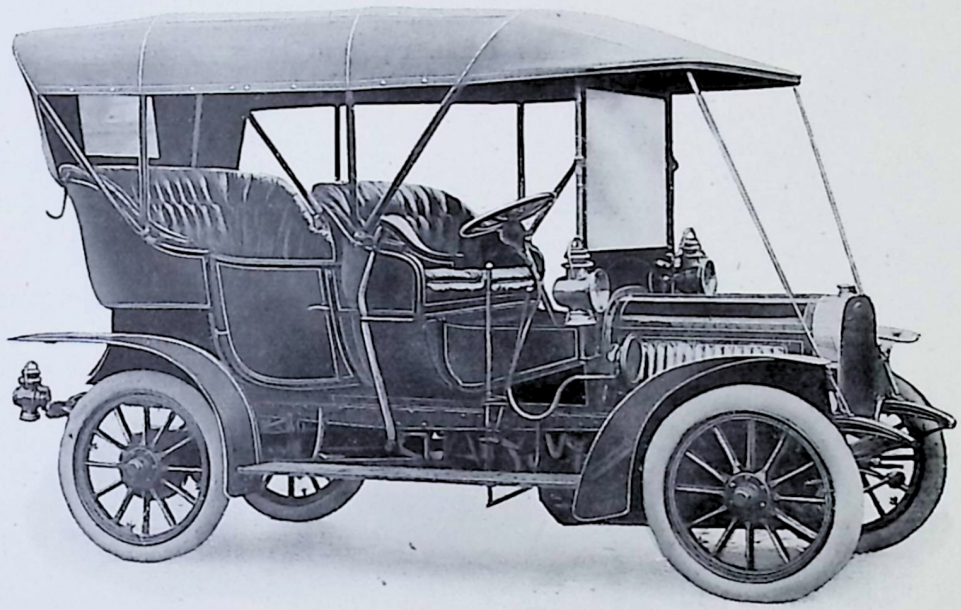
LUBRICATION.—On the splash system, with pressure drip feed to main bearings.

CLUTCH.—Multiple disc type, running in lubricant.

GEARING.—Govan patent.

SPEEDS.—8¾, 17½, and 35 miles per hour when the engine is running at 1,100 revolutions per minute. This may be accelerated to upwards of 45 miles per hour.

WHEELS.—Patent Artillery pattern, 34 in. diameter, built with staggered spokes to give the greatest possible lateral stability.



**16-20 H.P. Standard Side Entrance Car, with Cape Cart Hood and Glass Screen. Car, £450; Hood, £20; Screen, £8.**

TYRES.—Dunlop, Continental, or Michelin, 875 m/m by 105 m/m. Any other type to order.

WHEEL BASE.—9 ft. 0 in.; wheel track, 4 ft. 1¼ in.; overall width, 5 ft. 3 in.; overall length, 13 ft. 0 in.

STEERING.—Enclosed lock, irreversible pattern.

BACK AXLE.—Enclosed live axle. Ball bearings are made of the finest steel, carefully hardened and ground; gears all machine-cut.

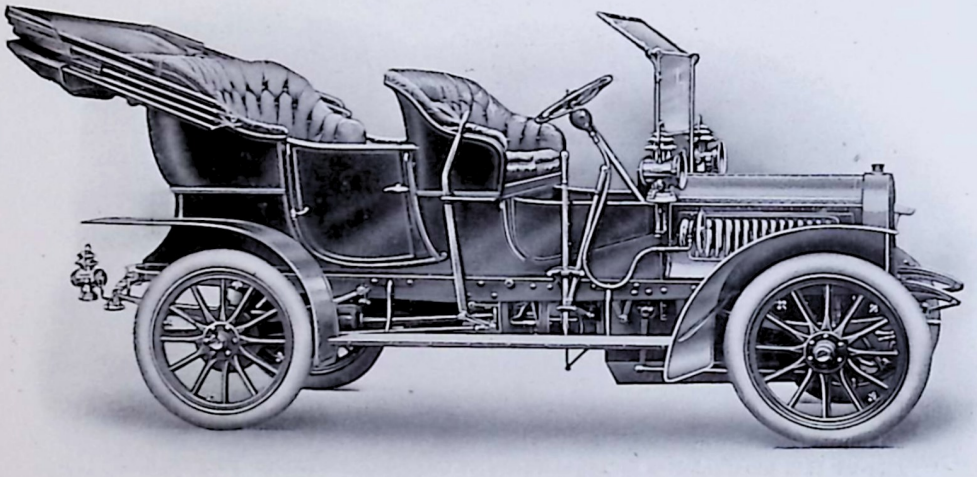
FRONT AXLE.—Built up front axle, rigidly stayed. Hubs run on large ball bearings.

FRAME.—Pressed steel, patent design.

SPRINGS.—Long and of ample width, ensuring easy running.

BODY.—Standard pattern side entrance Roi-des-Belges, of specially stamped sheet metal, finished with high-class fittings, upholstered in leather.

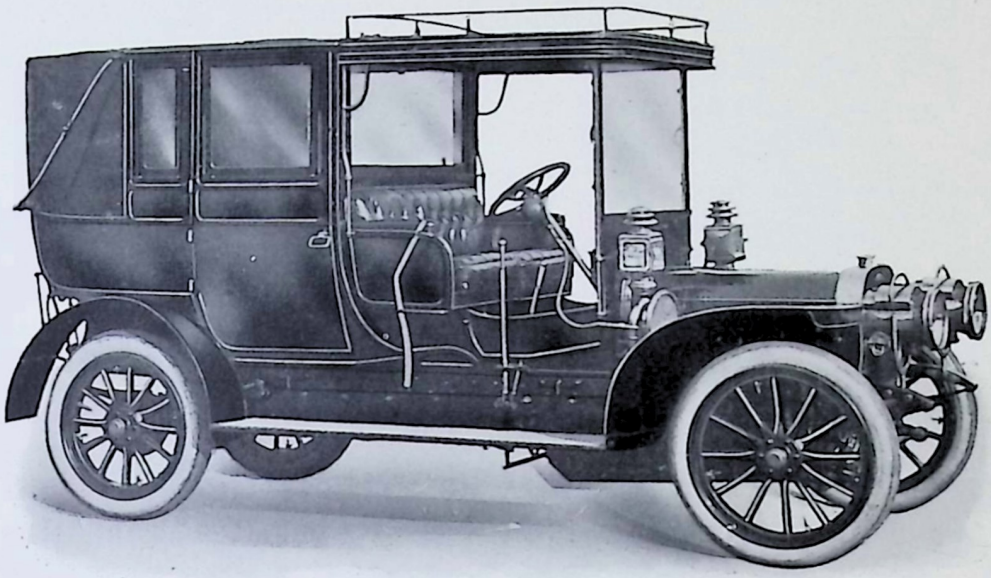
OUTFIT.—A complete equipment (as detailed on page 122) of lamps, mats, horn, tyre pump, screw jack, tools, repair outfit, etc., can be supplied at an extra charge of £11 10s.



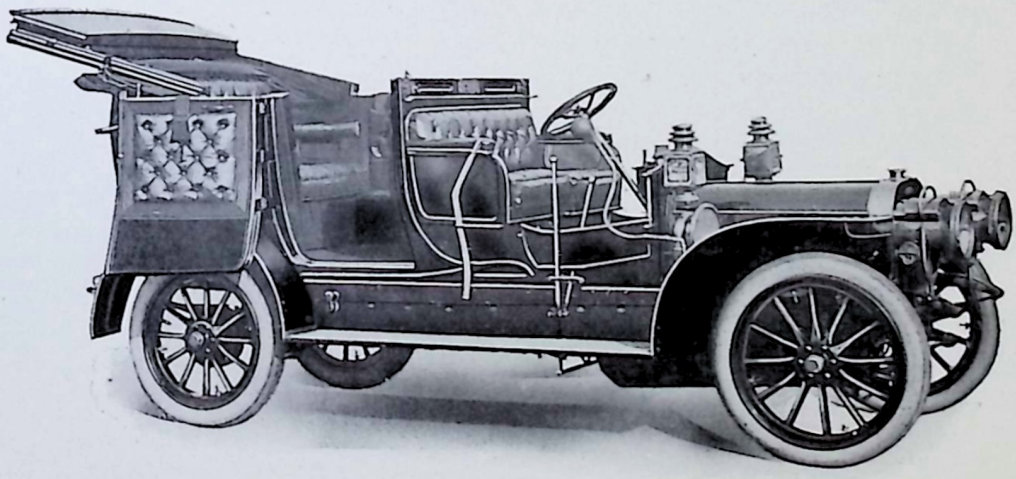
**16-20 H.P. Standard Side Entrance Car, with Hood and Screen.**

PRICE.—Side entrance, including set of spanners, oil can, screw driver, and petrol filler, - - - - - - - - £450 0 0

| | | | | |
|---|---|---|---|---|
| Fitted with Magneto, | - - - - - | extra, | - - | 25 0 0 |
| Do. | Cape Cart Hood, - . - - | ,, | - - | 20 0 0 |
| Do. | Canopy and Glass Front, - - | ,, | - - | 36 0 0 |
| Do. | Glass Wind Screen, - - - | ,, | - - | 8 0 0 |
| | Chassis, - - - - - | £405 | | |

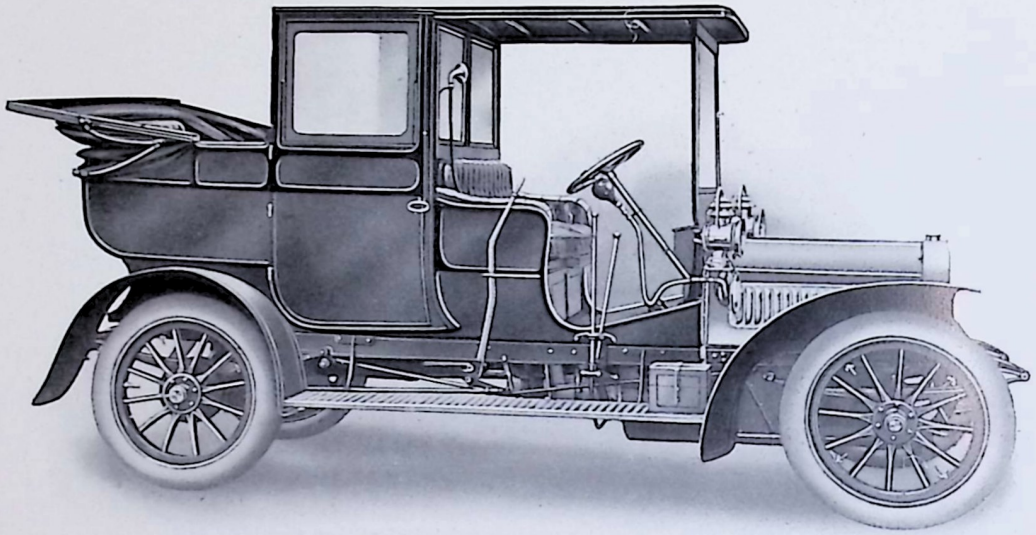


16-20 H.P. Chassis, with Three-Quarter Landaulet Body—View showing Car closed.



16-20 H.P. Chassis, with Three-Quarter Landaulet Body to open completely. Price, £675.
View showing Car open with Canopy and Glass Screen detached.

# 16-20 H.P. Argyll Three-Quarter Landaulet.



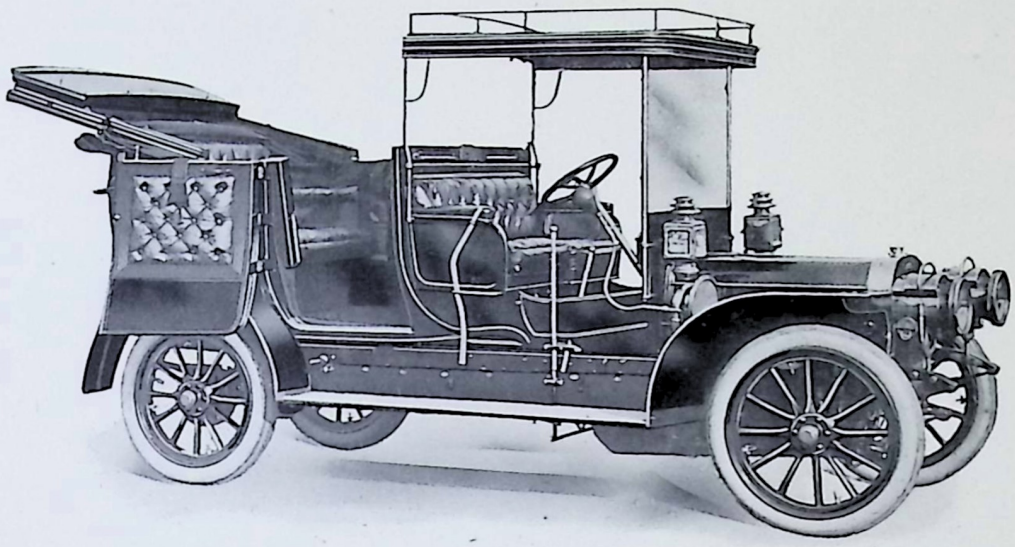
**16-20 H.P. Chassis, with Limousine-Landaulet Body, £645—View showing Car open.**

| | | | |
|---|---|---|---|
| Wheel Base, - - - | 9 ft. 9 in. | Total Breadth, - - | 5 ft. 3 in. |
| Wheel Track, - - - | 4 ft. 1¼ in. | Total Height, - - - | 7 ft. 3 in. |
| Total Length, - - - | 13 ft. 6 in. | Top Gear, Miles per Hour, - - | 28 |

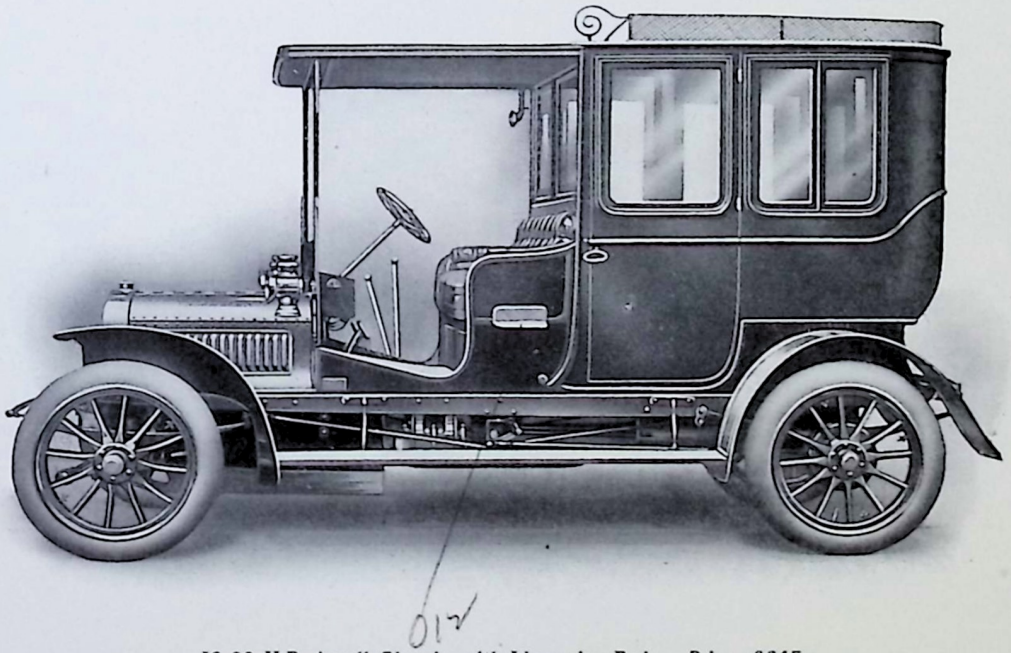
BODY SPECIFICATION.—This body is quite a new production, and in point of view of lightness of construction, general style, and excellence of finish, represents the most up-to-date coachbuilding practice. The limousine-landaulet is specially recommended as combining the comfort and strength of the limousine with the airy grace of the landaulet; similar bodies to open completely can also be supplied. An extension over the driving seat and folding wind screen are provided. The wind screen is framed in polished mahogany, and the semi-bucket driving seat is finished in buffalo leather. The body is built with the finest carriage panels; the glass frames are arranged to drop. The tool cupboard opens from behind; slam locks are fitted to doors; the long side platforms are covered with rubber and edged with brass angle plate. The patent folding head is covered with best enamelled leather; the interior is trimmed in morocco or carriage cloth, having silk curtains, laces, and pile carpets to match. Two auxiliary seats are provided, also pockets in doors, hat cords, net rack, glove tray and mirror, card tray, cigar rack. The body is painted and varnished in the best possible style.

PRICE.—16-20 H.P. Limousine Landaulet (Fixed Pillars, Roof Extension, and Folding Wind Screen), - - - - - - - - - - - - - - - £645

16-20 H.P. Three-Quarter Landaulet, having Folding Pillars, with Detachable Roof Extension, and Wind Screen, - - - - - - - - - 675

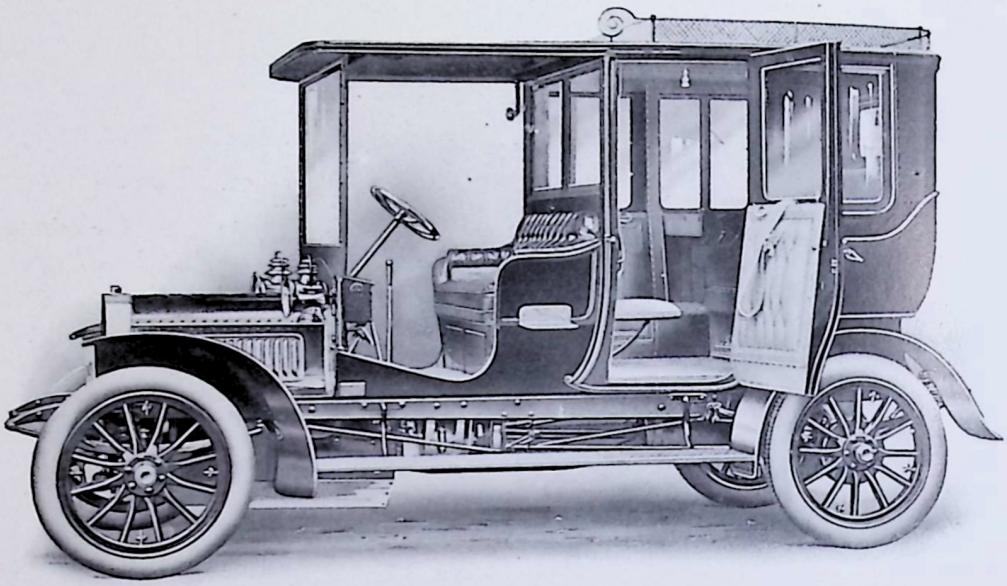


16-20 H.P. Argyll Chassis, with Three-Quarter Landaulet Body. Price, £675.
View showing exceptionally wide Side Entrance Door.



16-20 H.P. Argyll Chassis, with Limousine Body. Price, £645

# 16-20 H.P. Argyll Limousine.



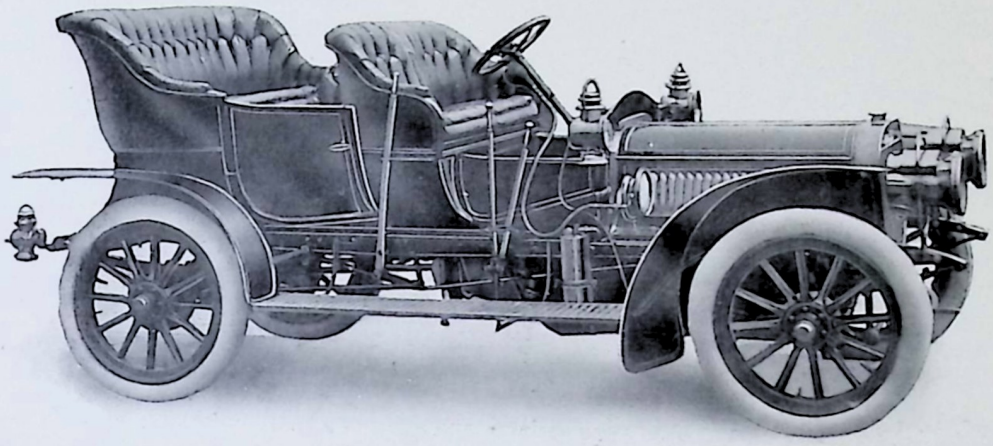
16-20 H.P. Limousine. Price, £645—View showing Interior Arrangement.

| | | | |
|---|---|---|---|
| Wheel Base, - - - | 9 ft. 9 in. | Total Breadth, - - | 5 ft. 3 in. |
| Wheel Track, - - - | 4 ft. 1¼ in. | Total Height, - - - | 7 ft. 3 in. |
| Total Length, - - - | 13 ft. 6 in. | Top Gear, in Miles per Hour, - | - 26 |

BODY SPECIFICATION.—This body is of a very pleasing design, being built with extension over driving seat, and folding wind screen having polished mahogany frame. The driving seat is finished in buffalo leather, and the polished mahogany glass frames all drop. The tool cupboard opens from behind, slam locks are fitted to the doors, and the long side platforms are covered with rubber and edged with brass angle plate. The interior is trimmed in ribbed cloth or morocco, as may be required; silk curtains, laces, and pile carpet to match. Two auxiliary folding seats are provided, also hat cords, net rack, pockets to doors, glove tray and mirror, card case, cigar rack, speaking tube, and two electric lights inside. The body is painted, mouldings picked out in black, and the whole finished in the highest class carriage style.

PRICE.—Argyll 16-20 H.P. Limousine, - - - - - - - - £645

# 26-30 H.P. Argyll Car.



26-30 H.P. Four-Cylinder Standard Side Entrance Car. Price, £550.

## SPECIFICATION.

ENGINE.—Aster, four cylinders, which are cast separately. Cylinders 105 m/m bore by 140 m/m stroke, fitted with mechanically operated valves. Magneto and water circulating pump gear-driven. Commutator in most accessible position.

CARBURETTOR AND THROTTLE.—Float feed, with automatic and mechanical air inlet (Argyll patent).

IGNITION.—High tension, with accumulator. High tension magneto may be fitted at an extra charge.

COOLING.—Specially designed radiator, giving large cooling surface, and fitted with pump and powerful fan.

LUBRICATION.—On the splash system, with pressure drip feed to main bearings.

CLUTCH.—Multiple disc type, running in lubricant.

GEARING.—Govan patent.

SPEEDS.—9½, 19, and 38 miles per hour when the engine is running at 1,100 revolutions per minute. This may be accelerated to upwards of 50 miles per hour.

WHEELS.—Patent Artillery pattern, 36 in. diameter, built with staggered spokes to give the greatest possible lateral stability.

TYRES.—Dunlop, Continental, or Michelin, 920 m/m by 120 m/m. Any other type to order.

WHEEL BASE.—9 ft. 3 in.; wheel track, 4 ft. 6 in.; total length, 13 ft. 3 in.; total width, 5 ft. 6 in.

STEERING.—Enclosed lock, irreversible pattern.

BACK AXLE.—Enclosed live axle. The ball bearings are of the finest manufacture; gears all machine-cut. Axle shafts free from all road shocks.

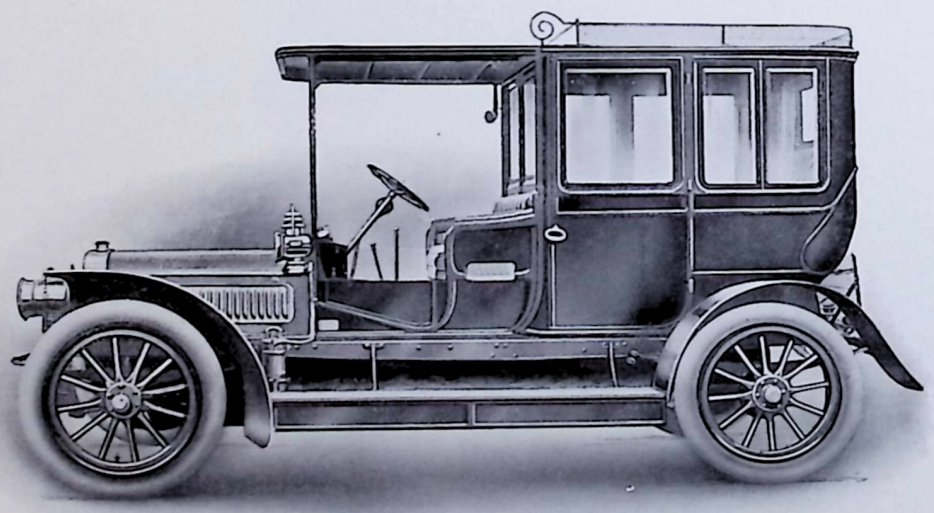
FRONT AXLE.—Built up front axle, rigidly stayed. Hubs run on large ball bearings.

FRAME.—Pressed steel, patent design.

BODY.—Standard pattern side entrance Roi-des-Belges, finished with high-class fittings, upholstered in leather, and having side doors fitted to front seats.

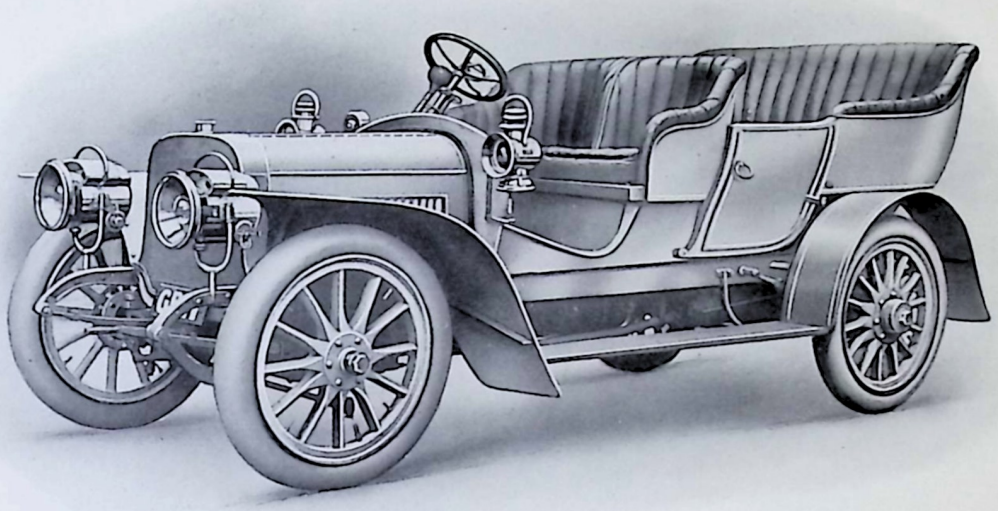
OUTFIT.—A complete equipment (as detailed on page 122) of lamps, mats, horn, tyre pump, screw jack, tools, repair outfit, etc., can be supplied at an extra charge of £11 10s.

| | | | | |
|---|---|---|---|---|
| PRICE, including set of spanners, oil can, screw driver, and petrol filler, | | | £550 | 0 0 |
| Fitted with Cape Cart Hood, | extra, | | 24 | 0 0 |
| Do. Canopy and Glass Front, | ,, | | 40 | 0 0 |
| Do. Magneto Ignition, | ,, | | 25 | 0 0 |
| Do. Folding Wind Screen, | ,, | | 8 | 0 0 |



**26-30 H.P. Argyll Chassis, with Limousine Body, £745.**

# 40 H.P. Argyll Car.



**40 H.P. Four-Cylinder Standard Side Entrance Car. Price, £650.**

## SPECIFICATION.

ENGINE.—Argyll, four-cylinder; the cylinders, 120 m/m bore by 140 m/m stroke, are cast in pairs, with the valves all on one side. The magneto and the pump are gear-driven. The commutator is driven by screw gear off the shaft driving the magneto; the geared oil pump is on same level as oil reservoir.

CARBURETTOR.—Float feed, with automatic and mechanical air inlet (Argyll patent).

IGNITION.—High tension magneto and accumulator.

COOLING.—Specially designed radiator, giving large cooling surface. and fitted with pump and powerful fan, obviating the need for any other water tank.

LUBRICATION.—By gear-driven pump on same level as reservoir.

CLUTCH.—Multiple disc, running in lubricant.

GEARING.—Argyll four-speed.

SPEEDS.—12, 24, 36, and 48 miles per hour when the engine is running at 1,100 revolutions per minute. This may be accelerated to upwards of 60 miles per hour.

WHEELS.—Patent Artillery pattern, 36 in. diameter, built with staggered spokes to give the greatest possible lateral stability.

TYRES.—Dunlop, Continental, or Michelin, 920 m/m by 120 m/m. Any other type to order.

WHEEL BASE.—9 ft. 8 in.; wheel track, 4 ft. 8½ in.; total length, 13 ft. 9 in.; total width, 5 ft. 8 in.

STEERING.—Enclosed lock, irreversible pattern.

BACK AXLE.—Enclosed live axle. Ball bearings are made of the finest steel, carefully hardened and ground; gears all machine-cut. Road wheels run on ball bearings carried on sleeves.

FRONT AXLE.—Special pattern, pressed steel. Hubs run on large ball bearings.

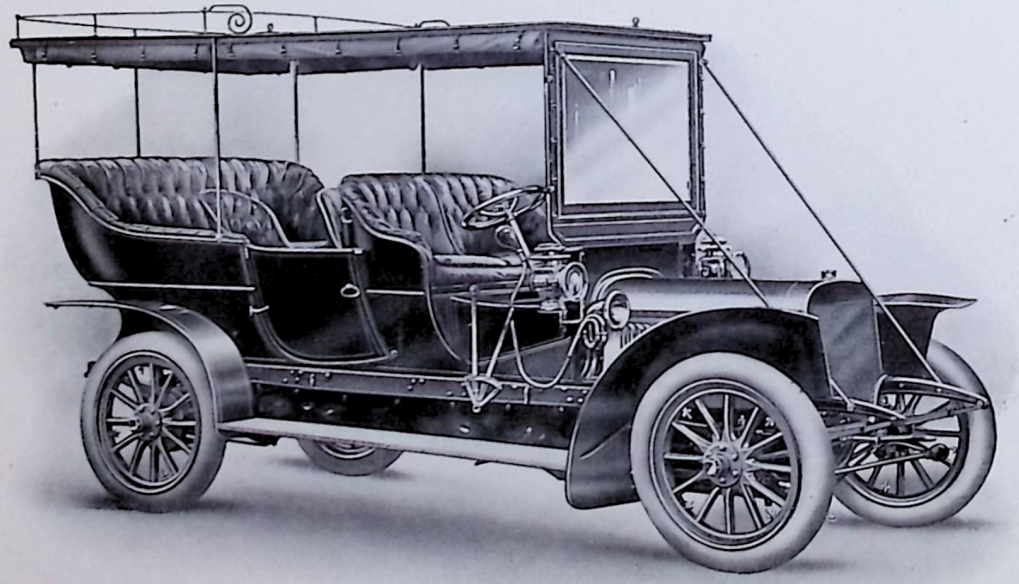
FRAME.—Pressed steel, channel section.

BODY.—This body is one of the latest and most elegant designs, and, being built with convex panels, is a pleasing contrast to the Roi-des-Belges type. The convex style gives the body a well-proportioned, full, and massive appearance, and is exceedingly graceful in a high-powered car. There is ample room in the tonneau seat for three persons. The doors are fitted with slam locks with the usual drop door handles outside, also lever handles at the top for convenience in opening from the inside of the car. The tool cupboard opens from behind, and the long side platforms are covered with rubber and edged with angle brass. The body is trimmed throughout in best cross-grained buffalo leather, quilted over springs and stuffed with best horse hair. It has full, luxurious roll tops all round and pockets to the doors, the lower parts being finished with pile carpets and silk laces to match the colour of the leather. The upholstery and cushions are specially heavy and comfortable. The body, chassis, and wheels are painted, picked out, fine lined, and highly varnished all over in the best possible style. Every care has been taken so that this body may fulfil all the requirements of an ideal touring car.

OUTFIT.—A complete equipment (as detailed on page 122) of lamps, mats, horn, tyre pump, screw jack, tools, repair outfit, etc., can be supplied at an extra charge of £11 10s.

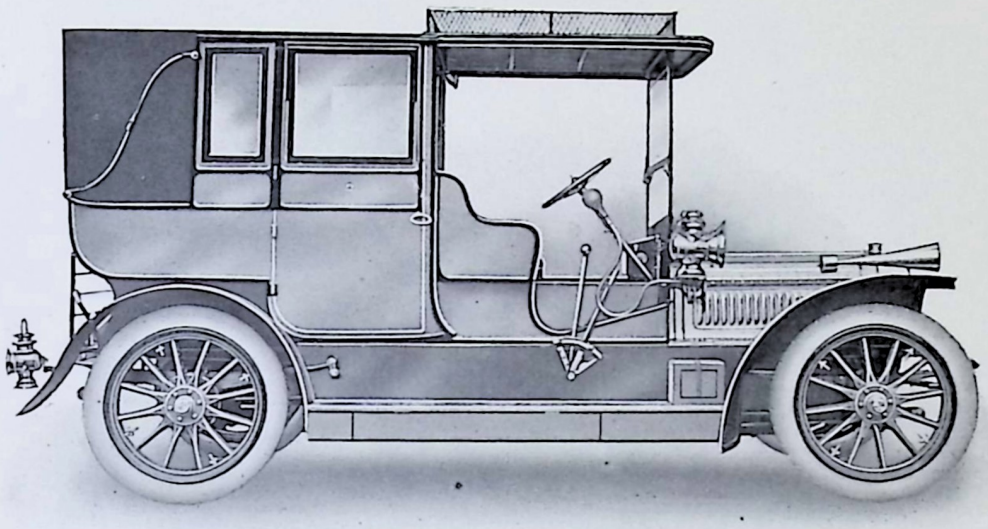
PRICE.—Complete car, including set of spanners, oil can, screw driver, and petrol filler, - - - - - - - £650 0 0

| | | |
|---|---|---|
| Fitted with Cape Cart Hood, - - - - extra, - | 24 | 0 0 |
| Do. Folding Wind Screen, - - - „ - | 8 | 0 0 |
| Chassis, for side entrance body, - - - - - - - | 585 | 0 0 |



40 H.P. Seven-seated Argyll Side Entrance Car. Price, £700. Canopy, Glass Screen, and Curtains, £60 extra.

# 40 H.P. Argyll Three-Quarter Landaulet.



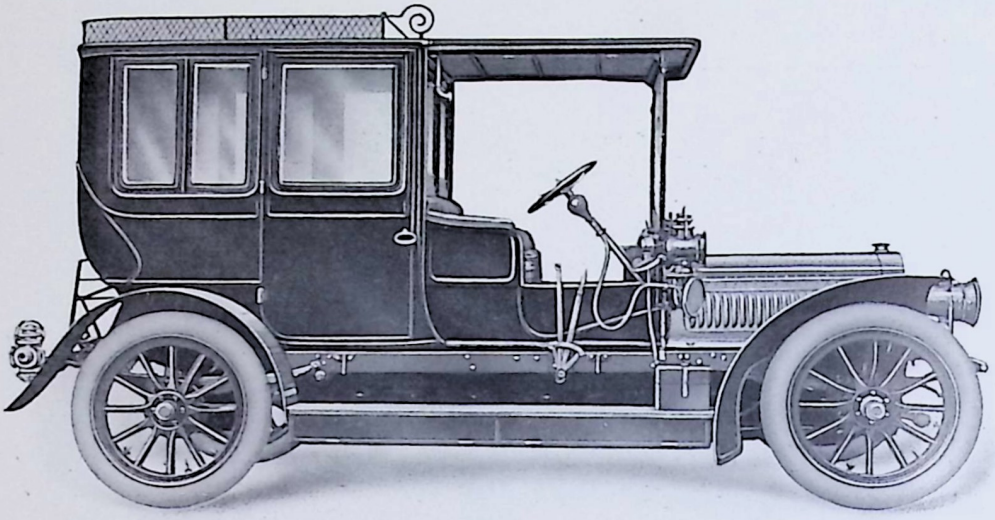
**40 H.P. Argyll Three-Quarter Landaulet, £845.**

| | | | |
|---|---|---|---|
| Wheel Base, - - - | 10 ft. 4 in. | Total Breadth, - - | 6 ft. 0 in. |
| Wheel Track, - - - | 4 ft. 8½ in. | Total Height, - - - | 7 ft. 3 in. |
| Total Length, - - - | 14 ft. 6 in. | Top Gear, Miles per Hour, - | - 36 |

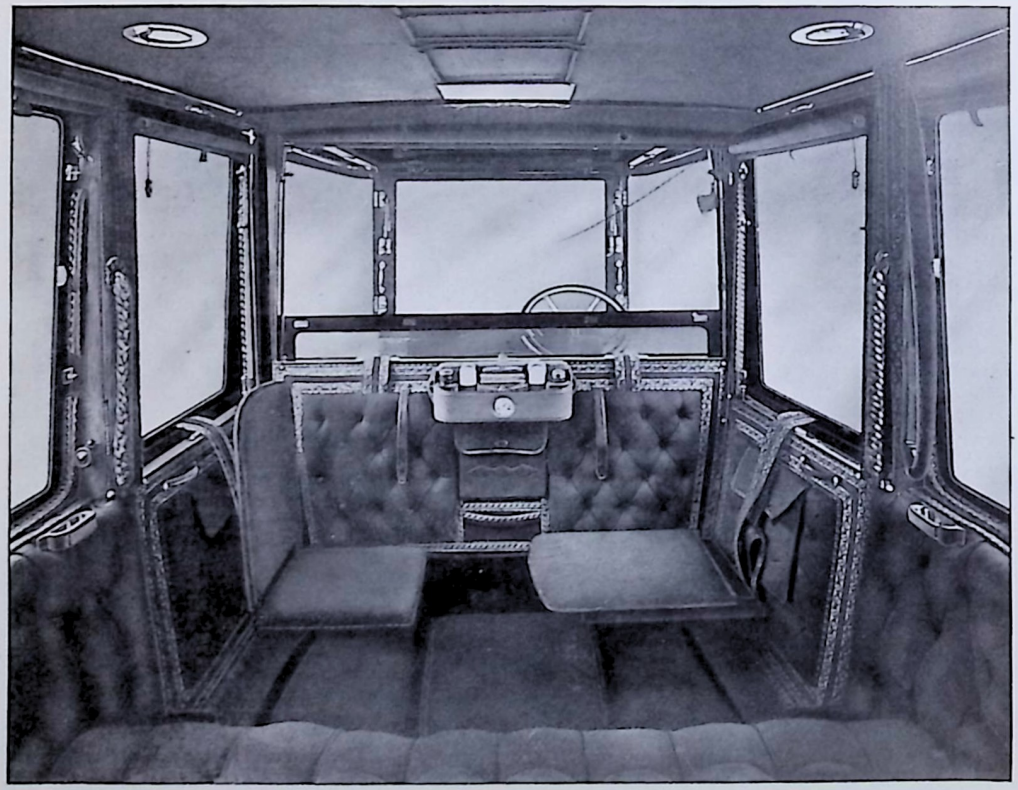
BODY SPECIFICATION.—This body is quite a new production, and in point of view of lightness of construction, general style, and excellence of finish, represents the most up-to-date coachbuilding practice. The limousine-landaulet is specially recommended as combining the comfort and strength of the limousine with the airy grace of the landaulet; similar bodies to open completely can also be supplied. An extension over the driving seat and folding wind screen are provided. The wind screen is framed in polished mahogany, and the semi-bucket driving seat is finished in buffalo leather. The body is built with the finest carriage panels; the glass frames are arranged to drop. The tool cupboard opens from behind; slam locks are fitted to doors; the long side platforms are covered with rubber and edged with brass angle plate. The patent folding head is covered with best enamelled leather; the interior is trimmed in morocco or carriage cloth, having silk curtains, laces, and pile carpets to match. Two auxiliary seats are provided, also pockets in doors, hat cords, net rack, glove tray and mirror, card tray, cigar rack. The body is painted and varnished in the best possible style.

PRICE.—

| | |
|---|---|
| 26-30 H.P. Limousine Landaulet (Fixed Pillars, Roof Extension, and Folding Wind Screen), - - - - - - - - - - - - - - - - | £745 |
| 26-30 H.P. Three-Quarter Landaulet, having Folding Pillars, with Detachable Roof Extension, and Wind Screen, - - - - - - - - - - - - | 775 |
| 40 H.P. Limousine Landaulet (Fixed Pillars, Roof Extension, and Folding Screen), - - - - - - - - - - - - - - - - - - | 845 |
| 40 H.P. Three-Quarter Landaulet, having Folding Pillars, with Detachable Roof Extension, and Wind Screen, - - - - - - - - - - - - - | 875 |

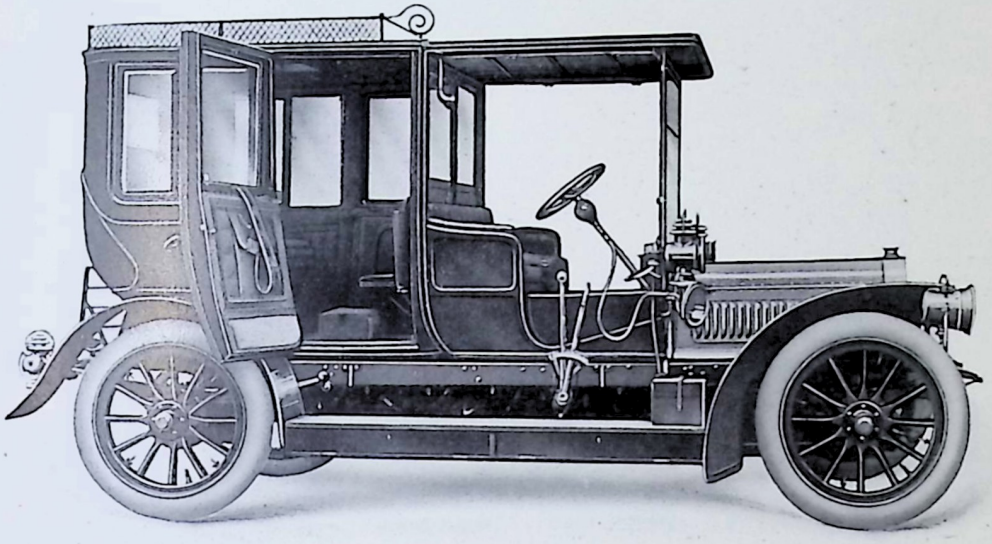


40 H.P. Argyll Chassis, with Limousine Body. Price, £845.



Interior of above Car, showing Folding Seats and various fitments.

# 40 H.P. Argyll Limousine.



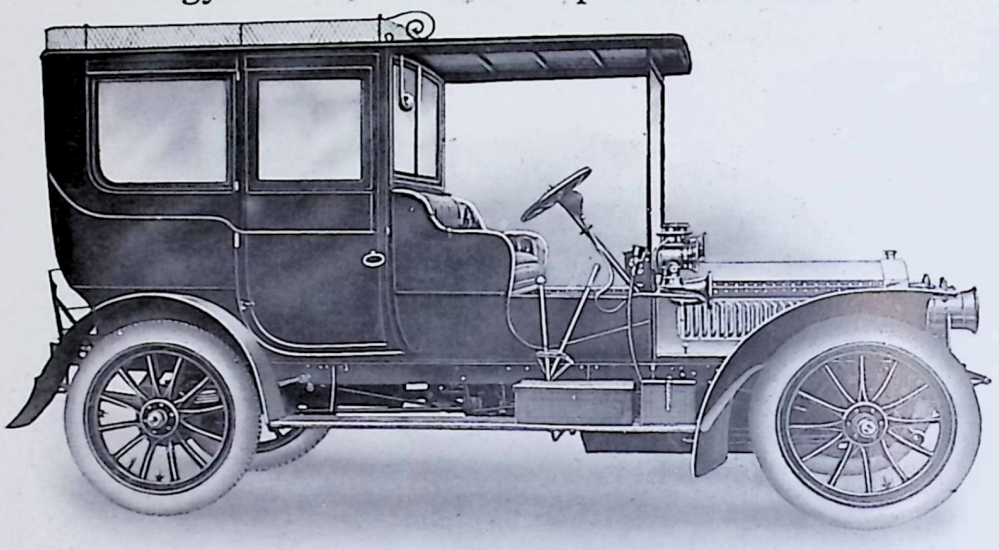
**40 H.P. Argyll Chassis, with Limousine Body. Price, £845—Door open showing Interior.**

| | | | |
|---|---|---|---|
| Wheel Base, - - - | 10 ft. 4 in. | Total Breadth, - - | 6 ft. 0 in. |
| Wheel Track, - - - | 4 ft. 8½ in. | Total Height, - - - | 7 ft. 3 in. |
| Total Length, - - - | 14 ft. 6 in. | Top Gear, Miles per Hour, - - | 36 |

BODY SPECIFICATION.—Much care and thought have been devoted to this car. The body is one of our most recent achievements, and the luxurious finish will undoubtedly appeal to all interested. It is built throughout of specially seasoned timber and the best mahogany carriage panels. It has extension over driving seat, and folding wind screen framed in polished mahogany. The semi-bucket driving seat is finished in buffalo leather. The window frames all drop; slam locks are fitted to the doors; the tool cupboard opens from behind, while the long side platforms are covered with rubber and bound with brass angle plate. The interior is trimmed in carriage, ribbed cloth, or morocco, as required, having silk curtains, arm holders, laces, and pile carpet to match. Two auxiliary seats are provided, also hat cords, net rack, pockets in doors, glove tray and mirror, card tray and cigar rack; speaking tube and electric lights can be fitted. The body is painted, mouldings lined, varnished, and finished throughout in exquisite style.

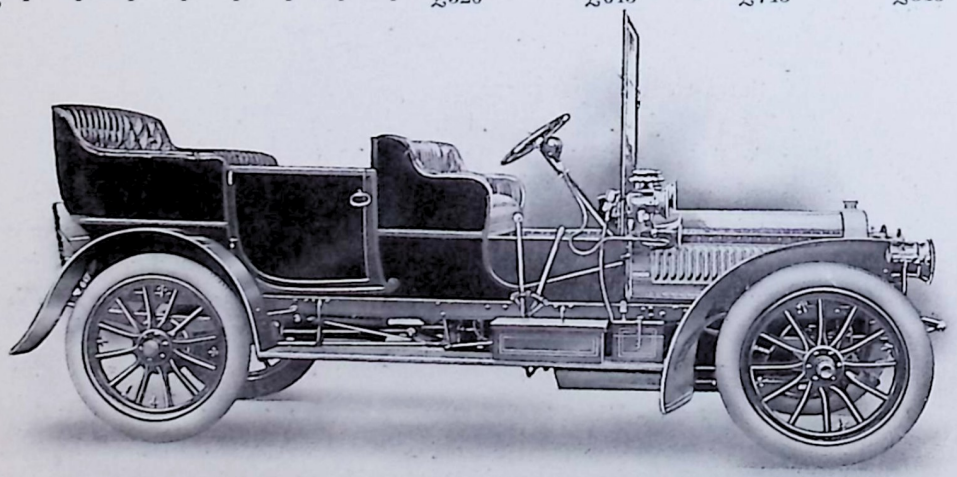
PRICE.—26-30 H.P. Argyll Limousine, - - - - - - - - £745
40 H.P. Argyll Limousine, - - - - - - - - - 845

# Argyll Detachable Top Limousine.

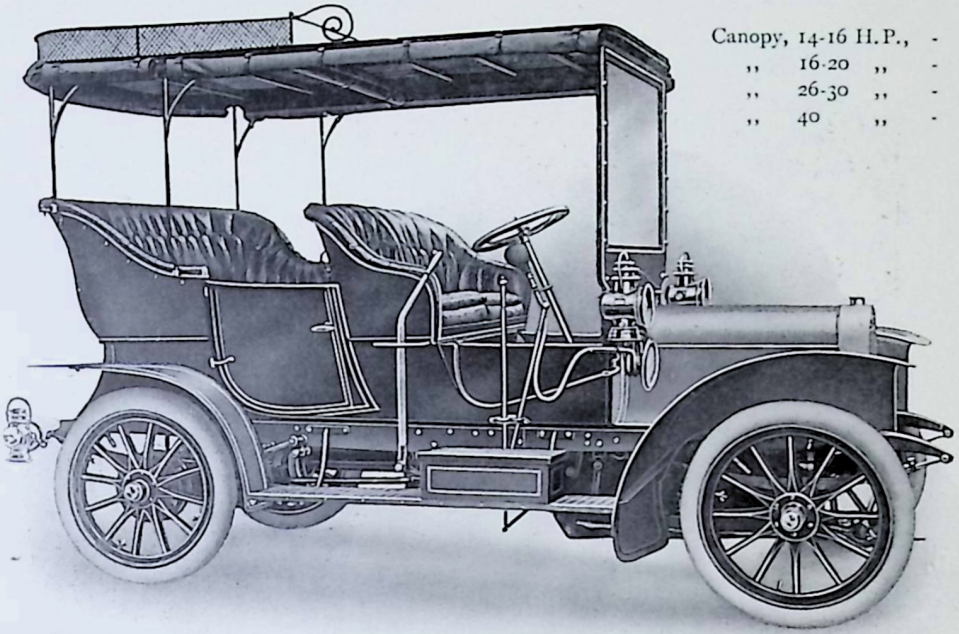


**40 H.P. Argyll Detachable Top Limousine. Price, £845—View showing Handsome Appearance of Complete Car.**

| | | | | |
|---|---|---|---|---|
| ENGINE, - - - - - - - - | 14-16 H.P. | 16-20 H.P. | 26-30 H.P. | 40 H.P. |
| WHEEL BASE, - - - - - - | 9 ft. 0 in. | 9 ft. 9 in. | 10 ft. 0 in. | 10 ft. 4 in. |
| TOP GEAR, in Miles per Hour, - - - | 27 | 30 | 33 | 36 |
| PRICE, - - - - - - - - - | £520 | £645 | £745 | £845 |

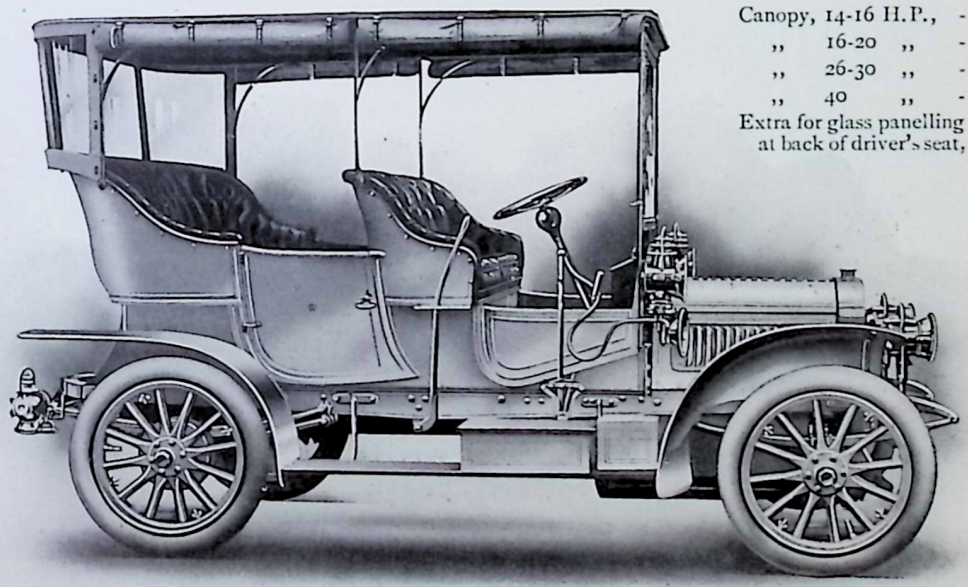


**40 H.P. Argyll Detachable Top Limousine—View showing Top removed, leaving Wind Screen for use with Open Car.**



| | | | |
|---|---|---|---|
| Canopy, | 14-16 H.P., | - | £32 |
| ,, | 16-20 ,, | - | 36 |
| ,, | 26-30 ,, | - | 40 |
| ,, | 40 ,, | - | 45 |

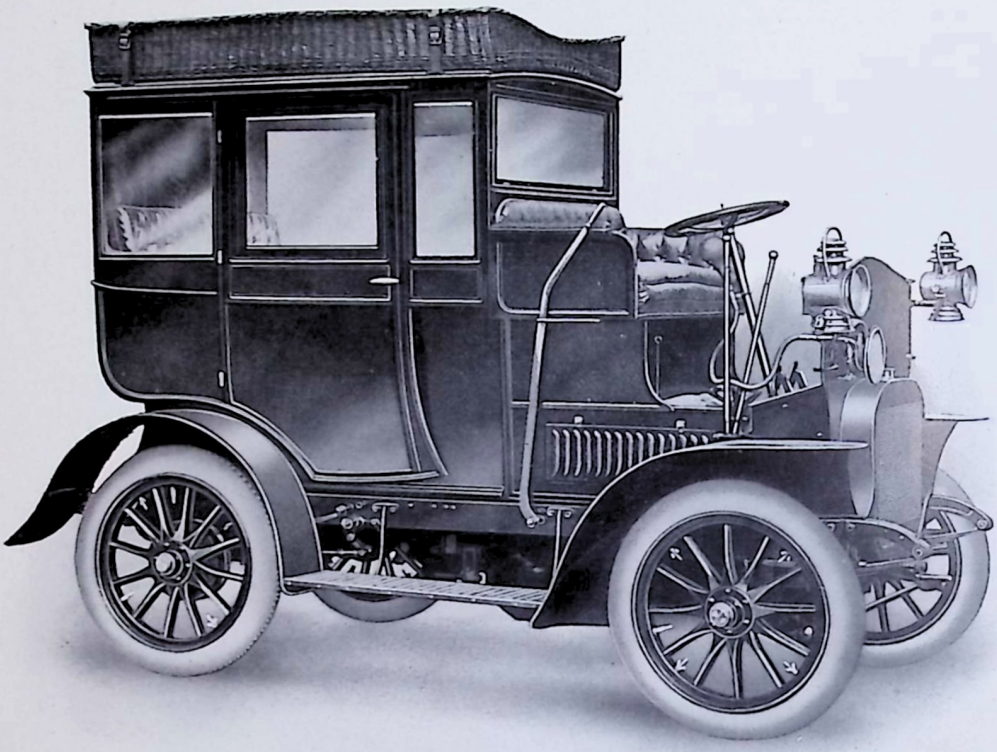
Side Entrance Car, fitted with Canopy and Glass Wind Screen, the Canopy being fitted with Curtains on all Sides.



| | | | |
|---|---|---|---|
| Canopy, | 14-16 H.P., | - | £42 |
| ,, | 16-20 ,, | - | 46 |
| ,, | 26-30 ,, | - | 50 |
| ,, | 40 ,, | - | 55 |
| Extra for glass panelling at back of driver's seat, | | | 10 |

Argyll Side Entrance Car, fitted with Canopy and Glass Wind Screen, the Canopy having Glass Panelling at Rear of Tonneau, and Side Curtains.

# 14-16 H.P. Argyll Station Brougham.



**14-16 H.P. Argyll Station Brougham. Price, £425.**

## SPECIFICATION.

ENGINE.—Argyll, four cylinders, cast separately, 90 m/m bore by 120 m/m stroke. Fitted with mechanically operated valves.

CARBURETTOR and THROTTLE.—Float feed, with automatic and mechanical air inlet (Argyll patent).

IGNITION.—High tension, with accumulator. High tension magneto may be fitted at an extra charge.

COOLING.—Specially designed honeycomb radiator, built with fluted tubes, giving large cooling surface, and fitted with pump and powerful fan.

LUBRICATION.—Lubrication by means of gear-driven pump; tell-tale sight feed is fitted on dashboard.

CLUTCH.—Multiple disc type, running in lubricant.

GEARING.—Govan patent.

SPEEDS.—5½, 11, and 22 miles per hour when the engine is running at 1,100 revolutions per minute.

WHEELS.—Patent Artillery pattern, 32 in. diameter, built with staggered spokes to give the greatest possible lateral stability.

TYRES.—Dunlop, Continental, or Michelin, 815 m/m by 105 m/m. Any other type to order.

WHEEL BASE.—6 ft. 9 in.; track, 4 ft. 6 in.; total length, 10 ft. 9 in.; total width, 5 ft. 6 in.

STEERING.—Irreversible pattern, and, in order to allow easy manipulation of the car in traffic, an extra wide lock has been provided.

BACK AXLE.—Enclosed live axle. Bearings are made of the finest steel, carefully hardened and ground; gears all machine-cut.

FRONT AXLE.—Built up front axle, rigidly stayed. Hubs run on large ball bearings.

FRAME.—Pressed steel, channel section.

BRAKES.—Foot brake operating on main shaft. Side brakes of the internal expanding type fitted inside drums on the back wheels.

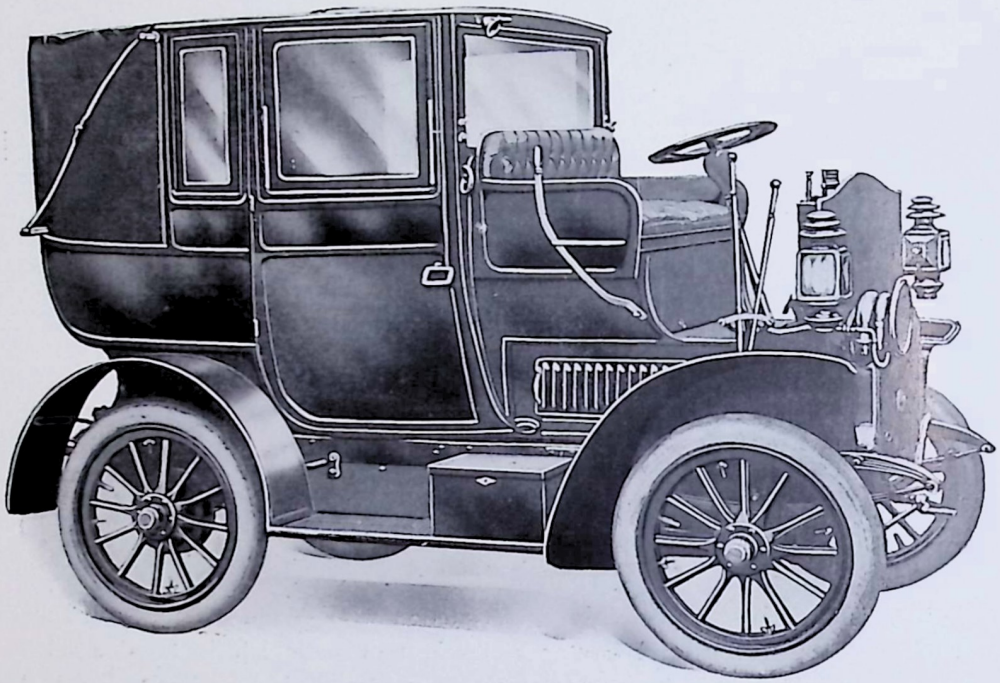
BODY.—This body is specially designed for station work—built of stout ash framing, with special panelling, and having a strong roof to which is fitted a full-sized deep luggage basket. There are two roomy seats inside, and windows in hind quarters. Slam locks are fitted to the doors; electric lights in the interior; speaking tube to driver; and rubber mats inside and out. The long side platforms are covered with rubber and edged with angle brass. This body is preferably trimmed throughout in dark green with laces to match; it is painted, lined, and varnished in first class carriage style. The high driving seat affords the driver easy access to whatever luggage may be carried, and renders the use of a roof ladder unnecessary.

With roomy and comfortable accommodation inside, ample capacity for carrying luggage, easy manipulation in narrow lanes on thick traffic, smart appearance, and high finish, this car combines all the qualities of an ideal station brougham.

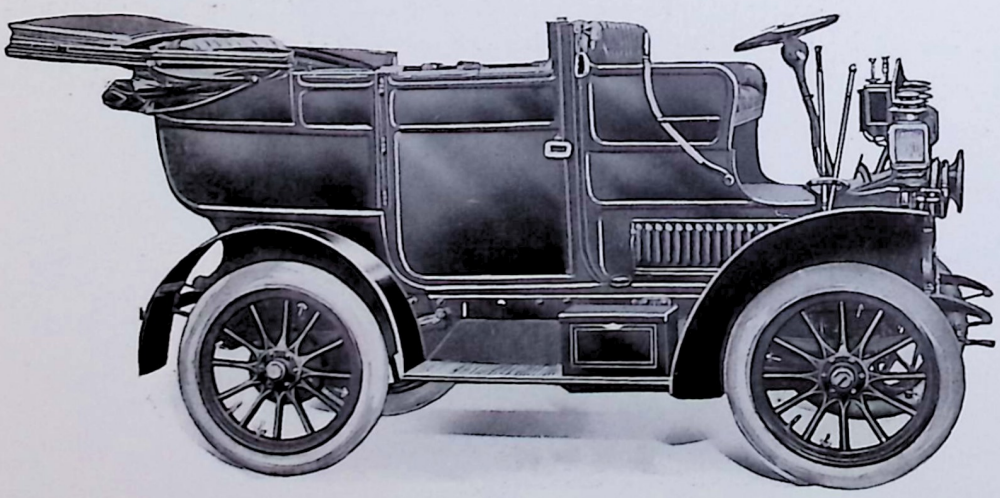
OUTFIT.—A complete equipment (as detailed on page 122) of tools, lamps, mats, horn, and spare parts can be supplied at an extra charge of £11 10s.

PRICE, including set of spanners, oil can, screw driver, and petrol filler - £425
Fitted with Magneto, - - - - - - - - - extra, 25

# The 14-16 H.P. Argyll City Carriage.



14-16 H.P. Argyll City Carriage, Landaulet. Price, £495.



14-16 H.P. Argyll City Carriage—View showing Car completely open.

# Hints on the Preservation of a Car Body.

1. The most important item for the preservation of a car is a good car house or garage. It should be dry and well aired, and have blinds to the windows to prevent the direct rays of the sun getting at the body of the car. The garage should be as far as possible from stables or a manure heap, as ammonia fumes quickly crack and destroy the varnish, change the colour of the paint, and otherwise cause decay. If of brick or stone, the walls should be plastered and painted or lined with wood to avoid dampness, which fades the colours and destroys the brilliancy of the varnish.

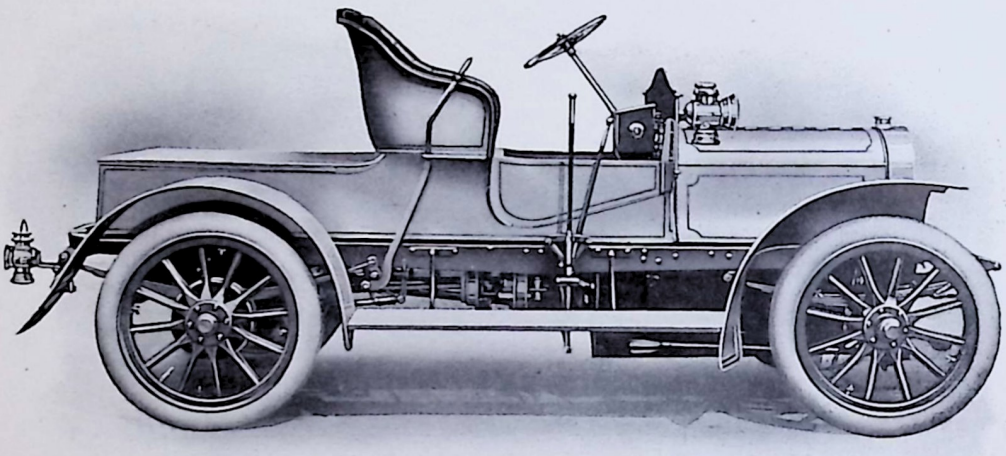
**Argyll Light Lorry.**

2. In opening a landaulet head, especially when new, great care should be taken. This should be done from the inside of the body, and, having dropped the window frames and released the catches which bind the roof sticks, the head can be pushed down by pressing the middle of the centre roof stick. It may be necessary, before attempting to put the head down, to strike the outside head joints; some heads, however, will fold without this, these joints working automatically by reason of the action of the hood itself in folding backwards. When the head is opened for the first time, it should be lowered about half-way and the leather assisted into its proper folds with the hands. This precaution is necessary because, if the leather folds wrongly at first, it gets into a set, and it will be extremely difficult to fold it otherwise.

3. The head should be raised from the inside of the body by gripping the centre of the main roof stick and pulling it into the up position—if necessary, striking the outside joints into the stop knuckles, and refixing the roof catches. The windows may then be pulled up.

4. A landaulet head should never be left open overnight, as the leather becomes creased and contracts so that difficulty may be experienced in getting the head to close properly.

5. Immediately after use the car should be thoroughly washed, as mud or water drying on the panels causes spots or stains, and in some cases it will be impossible to remove these. Every chauffeur should form the excellent habit of never allowing

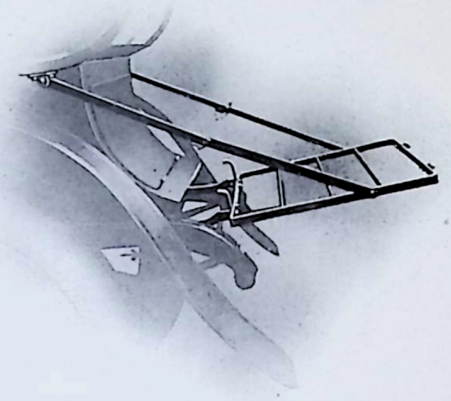


**14-16 H.P. Model-de-luxe Two-Seater Car—Wheel Base, 8 ft. 4 in. Price, £355.**

his car to stand overnight without having it washed, whatever be the time or weather. In the event of the car not being required for a few days, it ought to be covered with a linen or cotton dust cover.

6. In washing a car, considerable care and some practical knowledge is necessary. It should be kept out of the sun, and plenty of water should be used; with a hose, care should be taken (especially round the doors and windows) not to drive water into the body and thus injure the upholstery. Do not rub off the mud. Sufficient water should be applied to soften it and carry it away, thus obviating any damage.

7. The dust or mud having been removed, the actual washing should commence at the roof, a ladder with padded ends being used to reach it. When finished, it should be wiped dry with a chamois leather. The panels should next receive attention,



Standard Luggage Grid—Open.

and these should be cleaned by squeezing water over them from a large soft sponge, and drying thoroughly with chamois leather skin. The panels should always be sponged, dried, and polished upwards and downwards, not from side to side.

8. The folding leather head of a landaulet should be washed and dried *lightly*, as pressure stretches the leather, which will be marked by coming in contact with the roof sticks, thus causing the head to have a shabby appearance. A little soap may be used in washing.

9. The chassis, mud-guards, and wheels should be washed last. The same sponge and skin should never be used for these as for the body, since it may become soiled with grease or oil. Grease will be more easily removed if a tablespoonful or so of paraffin oil is added to the water, but care must be taken that this water does not touch the panels of the body.

10. Each wheel should be jacked up while it is being washed; a spoke brush should not be used, as, in conjunction with the grit from the road, it acts like glass paper, scratching and destroying the paint.

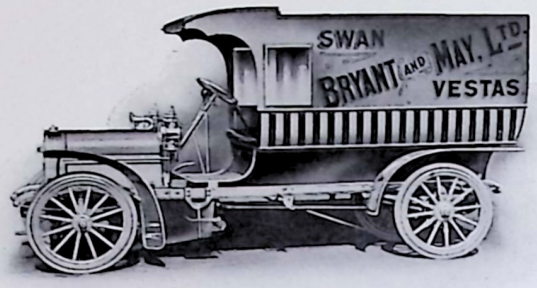
11. During frosty weather, the car should always be washed under shelter, and in an atmosphere warmer than outside.

12. *Hot water* or *soap* should never be used on a varnished surface.

13. In cleaning the metal beadings, no acids should be used, and care must be taken not to scratch the paint or leather work. A dry chamois or a woollen rag should polish these beadings without using any special preparation, unless they have become badly tarnished by long standing.

14. The interior upholstery should be thoroughly cleaned out with a brush of the "weaver's" type.

Standard Luggage Grid—Closed.




Argyll Light Delivery Van.

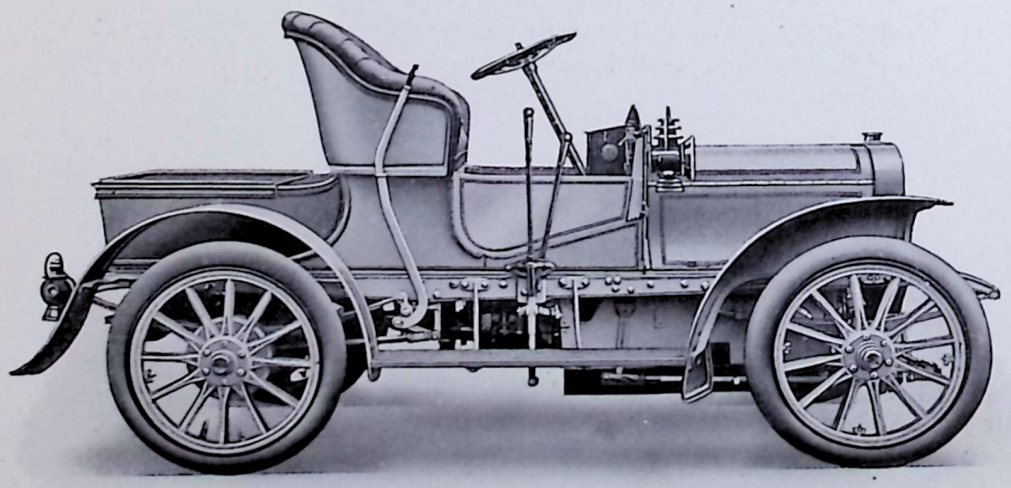
Care should always be taken to brush the cloth the way of the "pile," not against or across it.

15. The buffalo or motor leather used in trimming most open cars, and the driving seats of covered cars, may be cleaned with lukewarm water and soap, the leather being dried with chamois skin.

16. The morocco leather, which gives the interior of covered cars their rich, soft, and comfortable finish, is very durable, but should, however, never be *washed;* water will damage the colour, and injure the finish of this leather. It should be cleaned with a soft brush or dry chamois, and its polished finish can be kept in good order by using a little beeswax applied with a piece of soft rag.

17. Grease spots or other stains on cloth or carpet may be removed by using a light brush moistened in petrol. This will immediately remove any grease, and will in no way injure or mark the cloth. To prevent or destroy moths, a little camphor contained in a small bag may be placed inside the car, or the camphor may be dissolved in turpentine contained in an open vessel placed inside the car; the doors and windows being closed in either case.

18. If a car is not in use, it should be washed and brushed out at least once a month, even though protected by a cotton or linen cover.

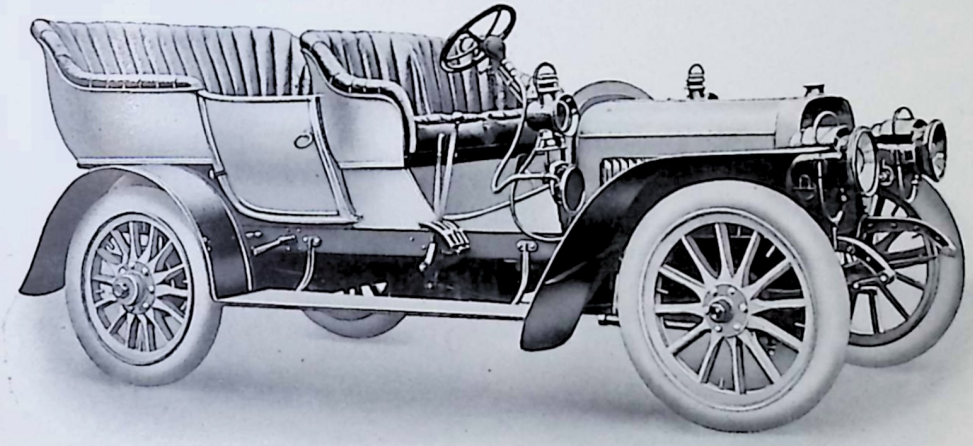


14-16 H.P. Standard Two-Seater Car. Price, £340.

19. A bottle of carriage japan and a suitable brush should always be kept at hand to paint or touch up foot-boards or iron work, such as step stays. This will be of great assistance in retaining the smart appearance of the car.

20. Locks, hinges, and joints, and all working parts of the body, should be examined and oiled periodically. Care must be taken that no excess of oil is used, as it may get on to the upholstery, which would readily absorb it. Stains so caused can only be removed with difficulty.

21. The door should always be kept shut while the car is in motion; if open, it may come in contact with a tree or some other object, and considerable damage result. The doors of the car house or garage should be fastened back when open, otherwise, a sudden gust of wind may blow them against the car and seriously damage it.



**40 H.P. Argyll Side Entrance Car.**

22. The chassis and wheels should be painted, and the body touched up and varnished about once a year. Apart from the pleasing appearance of a well-kept car, this will greatly assist the body work in resisting the effects of a varying climate. Such renovation should not be hurried, for in coach-painting, time is as important as labour and material in the production of a thoroughly well finished and durable piece of work.

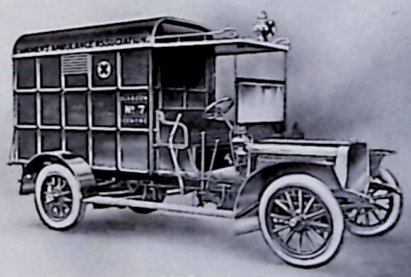
23. A newly varnished car should stand for a few days before being used, more especially in wet weather. Frequent careful washing, followed by not less careful drying, will help to harden the surface, and to bring up that brilliancy which is the result of a perfect finish.

# Argyll Commercial Vehicles.

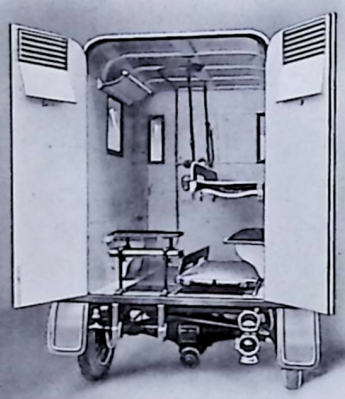
THE illustrations show a few examples of the vehicles produced by "Argyll Motors," Ltd., for commercial purposes, and they have been introduced into the pages of the present Catalogue with the object of interesting the motoring public who, while being users of pleasure vehicles, may desire to know something of the development of the automobile in commercial matters.

A special department is organised for the purpose of dealing with this important part of the business, and firms contemplating the introduction of motor traction are invited to send in their enquiries, which will be promptly dealt with, and expert advice given on questions affecting upkeep, etc.

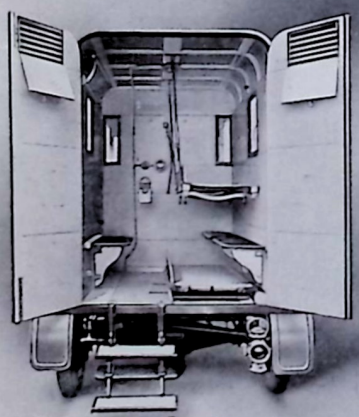
Catalogues, dealing exclusively with commercial vehicles, will be mailed to any address on application.



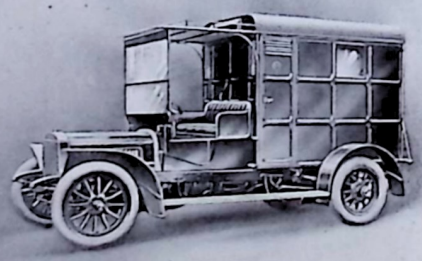
30 H.P Argyll Ambulance.



Interior - showing step folded for use as seat.

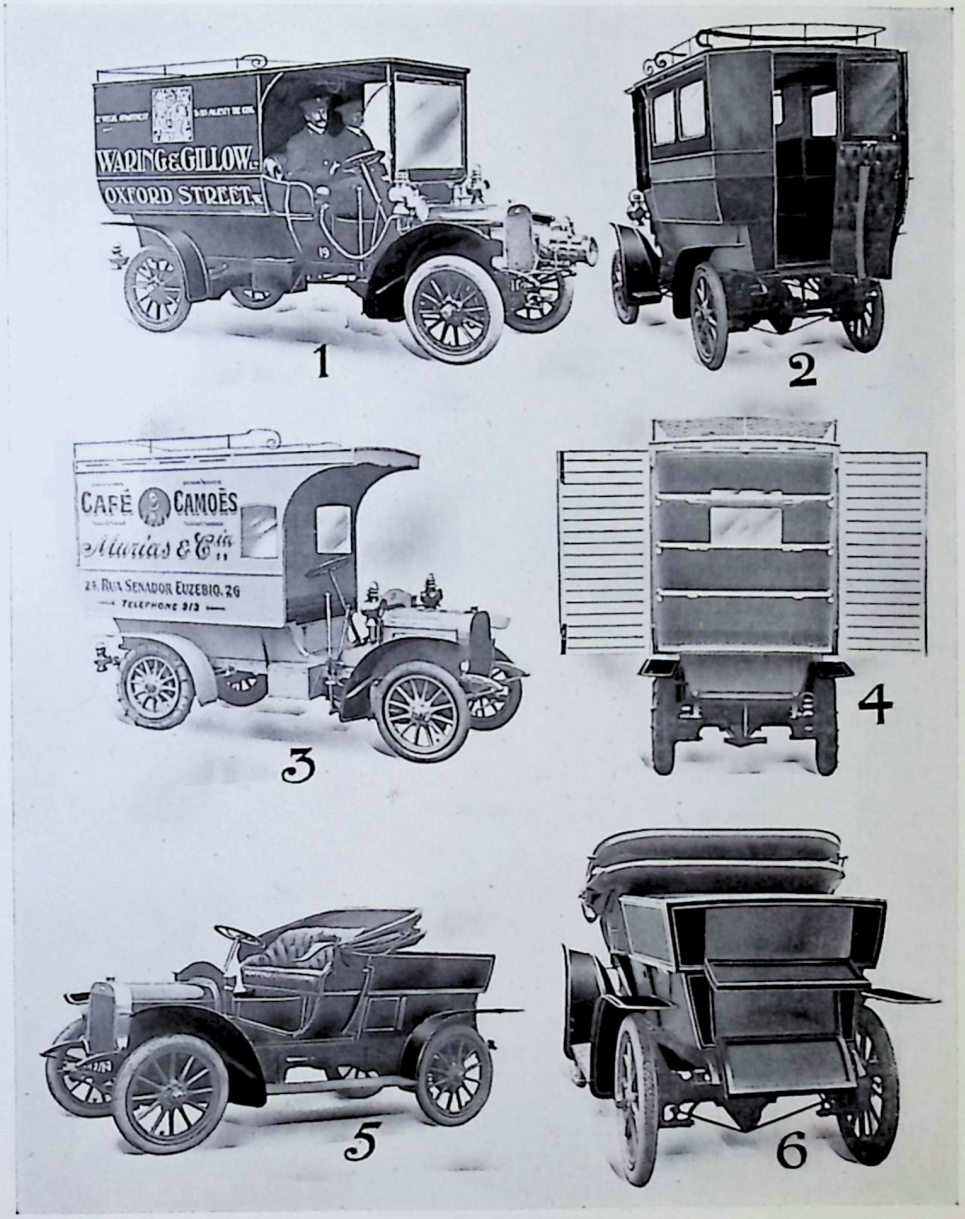


Interior - showing step ready for use.



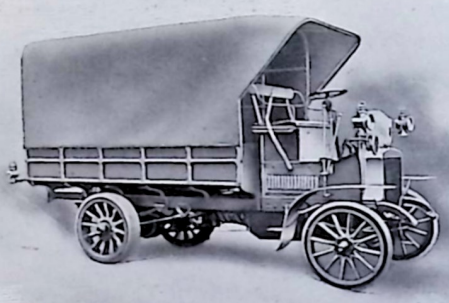
30 H.P Argyll Ambulance.

# Types of Argyll Commercial Vehicles.



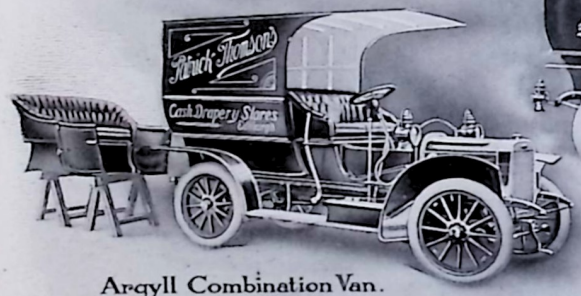

1. Light Delivery Van.
2. Traveller's Sample Carrier.
3. Light Delivery Van.
4. Interior of a Van (No. 3).
5. Car arranged to carry Samples of Wall Papers.
6. Rear View of same Car.

# Types of Argyll Commercial Vehicles.



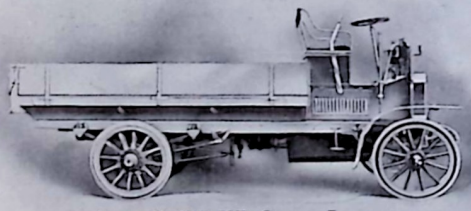
Argyll 20 H.P. 2 ton Van.

Argyll 20 H.P. 2 ton Combined Lorry and Waggonette.

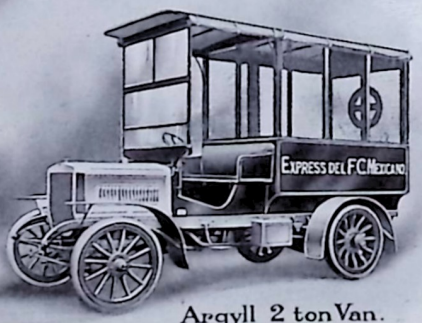



Argyll Combination Van.


Argyll Newspaper Delivery Van.



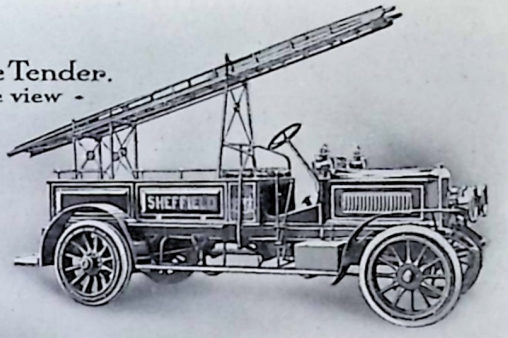
Argyll 20 H.P 2 ton Lorry Detachable Sides.

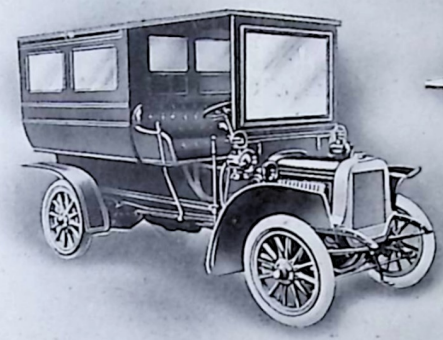



Argyll 2 ton Van.

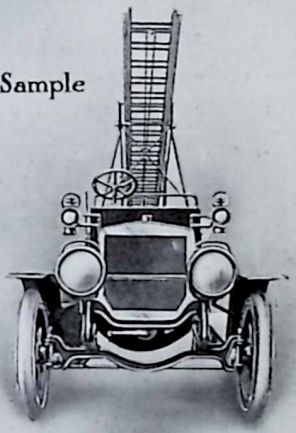
# Types of Argyll Commercial Vehicles.

Argyll Fire Tender.
- side view -

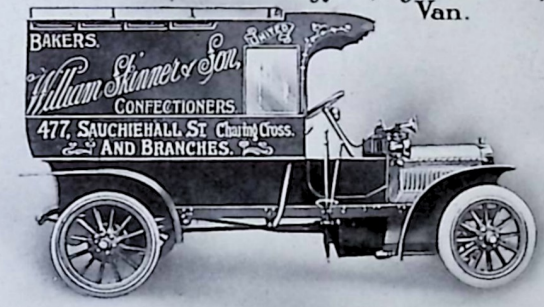


Argyll
Travellers' Sample
Carrier.

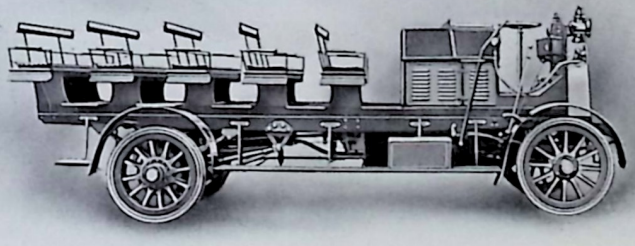


Argyll Light Delivery
Van.




Argyll Fire Tender.
- front view -

Argyll 30 H.P.
Charabanc.



# What Other People Think.

## IT IS PERFECTLY WONDERFUL WHAT SHE DOES.

Stutton Lodge, Ipswich,
18th October, 1907.

Messrs. Argyll Motors, Limited,
Alexandria.

Dear Sirs,—The 14-16 H.P. car is a real wonder. She goes up any hill round here on her top, and likes it. I can easily get over 35 miles per hour if I want. It is perfectly wonderful what she does, and I would not change her for any car I have seen.—Yours truly,

(Signed) GODOLPHIN MILLBANK.

## SPLENDID WORK.

September 7th, 1907.

I have returned from a tour in the South of England, about one thousand miles, and the 14-16 H.P. car which I purchased through Mr. M. Davies, Shewsbury, last May, did splendid work. We had no trouble at all.

Clanbruno, Carnarvon. (Signed) THOMAS JONES.

**The Visit of the Colonial Premiers to the Argyll Factory.**

An Argyll Char-a-banc.

## THE PERFECT TOURING CAR.

Dear Sirs,—I do not know quite what sort of a test a car should have, but the following test for any car ought to prove whether it is a serviceable one and coming up to its description or name—*i.e.*, a touring car. After purchasing my 16-20 H.P. Argyll through H. Garner, of Nantwich, last October, and being pronounced handsome, and with a hope that it would "go" as well as it looked, I gave it a trial run (non-stop) to Ripon, Yorks. This it did well, both going and returning, taking all the hills, and not using too much petrol. There was not a single stop of any kind, and, as the car was perfectly new, this gave me great pleasure. Since then the car has done many long journeys, always going strong.

In July I wished to make a short tour of about a fortnight, and started late one afternoon, filling up with five cans of petrol. My wife and driver accompanied me, and luggage was placed behind the car as well as being full up inside.

Mention should be made of the way the car took certain hills, etc., especially a long hill between Ludlow and Hereford, also between Gloucester and Ross, and one of the worst short hills in Devon, Haddon by name, with a rise, I should say, of one in three and a-half.

I said long ago that I should not be satisfied with the motor unless it could take this hill. This it did with ease, there being four passengers. This hill, I may say, is most dangerous.

The approximate mileage was between eleven and twelve hundred miles, and sixty gallons of petrol was used. During the whole tour we did not have a single break-down of any kind, or puncture, using the same tyres that were on the car when new.

The car makes very little dust, and, compared with those we met on the road, makes *nil*, and is anything but noisy.

All I can say is that, if asked what car I should recommend as a touring car, I should certainly say "Argyll."—Yours faithfully,

(Signed) CHAS. T. C. LUXMOORE.

---

I have had a good many different makes of cars in different countries, but I have never been in a more perfect touring car than the 16-20 H.P. Argyll.

(Signed) J. W. HARDING.

TYRES DONE SEVEN THOUSAND MILES AND STILL RUNNING.

Dear Sirs,—I have just returned from a tour in Devon and Cornwall on my 16-20 H.P. Argyll, having done about twelve hundred miles in a fortnight.

The petrol consumption was twenty-five miles (by mileage indicator) to the gallon, and also the car climbed a hill, locally said to be one in three, with two passengers and luggage. I was told that it was the first car less than 40 H.P. which had done this, and the roads very greasy into the bargain. I had only one stop, except tyre troubles, and that was a stopped jet which was cleared in less than five minutes, and since my return I have done about five hundred miles, also without stoppage. The car is very light on tyres, the tyres on front wheels being the original ones, which have done about seven thousand miles (Continentals), and the back tyres, one has run two thousand miles, and the other fifteen hundred, both of these being Palmer Cord.—Yours truly,

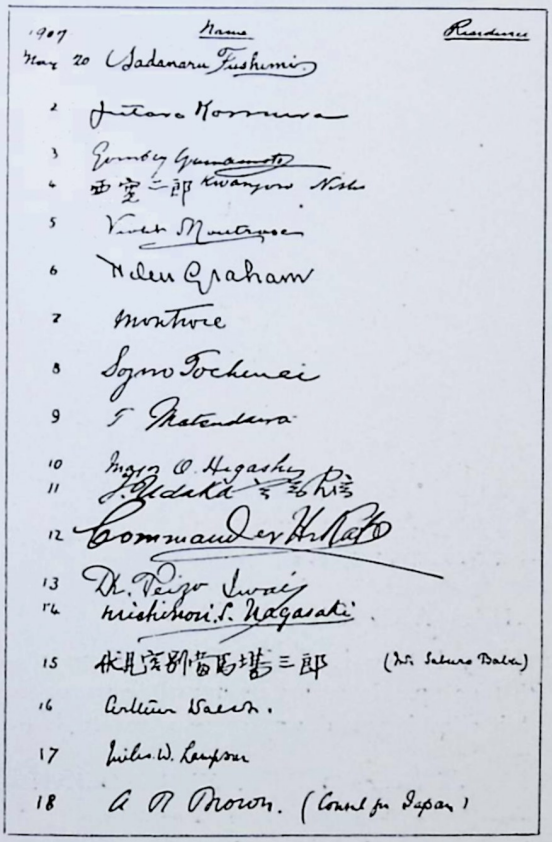
Liverpool. (Signed) P. J. CLARKE.

**Prince Fushimi and Suite visit the Argyll Works.**

## THE CAR THAT WON THE CHALLENGE SHIELD OF THE MOTOR UNION OF WESTERN INDIA.

Extract from letter by Lieutenant-Colonel Rennie, Ambari Park, Western Doon, India:—

"I live in a valley at the foot of the Himalaya mountains; along the valley, running east and west, is a road, and the nearest town is twenty-nine miles distant. Between my house and the town (Delua Doon) the road is crossed by seven dry mountain torrent beds. I do the run into Delua regularly under the hour, including the drop to first speed for the river beds, and use only one gallon petrol for the twenty-nine miles. The petrol I use is the Burmah Oil Company's, and I have got as much as thirty-two miles per gallon on the flat. This, I fancy, is about a record for a four-cylinder 20 H.P. car.




**Entries in Visitors' Book on the occasion of Prince Fushimi's visit.**

"Bounding the valley on the south, and separating it from the plains and from the railway at Sabarumpore (forty-seven miles from my house), is a range of mountains averaging four thousand feet above sea level. The gradient of the road through the pass is in places as much as one in eight. The car takes this grandly with five up and three hundred lbs. luggage, and does the eleven miles to the summit in thirty minutes, with only two drops to second speed and one to first speed just near the top.

Including the mountain climb and descent, I often do the forty-seven miles to the station in two hours. The car is simply splendid, and gives every satisfaction, and its hill-climbing powers are wonderful."

---

## PROVED RELIABILITY.

I have done forty miles in one and a-quarter hours, and can give you proof of this fact. My car (14-16 H.P.) will, I think, do anything, and I have driven her four thousand miles, and had two stops. These stops were two punctures.

(Signed) W. A. JACKSON.

## ARGYLL MOTORS, LIMITED.

### WITHOUT THE SLIGHTEST TROUBLE.

We have just returned from our tour in the West Highlands on a 14-16 H.P. Argyll, purchased from Messrs. Walker & Hutton. With five people in the car, on the worst roads I ever dreamt of, we did about six hundred miles without the slightest trouble, except a slight misfire, which kept us about five minutes. We had no puncture, and the tyres have only been blown up once since I got the car. Near Spean Bridge we ran through a deep trench in the road, caused by rain coming down from the hills. We were going about fifteen miles per hour, and went in with a fearful crash, but no harm was done.

(Signed) E. B. THOMSON.

**Visit of the Imperial Industries Club—Mr. W. A. Smith shows a party round.**

### 14 H.P. ARGYLL ON HILLS AND ON LEVEL.

It (12-14 H.P.) is going better every day I take it out, and I may say gear changing is almost unknown to it, even with four up. It surpasses my wildest dreams. I beat a 15 H.P. . . . to fits to-day hill climbing, and was quite equal to it on the level.

(Signed) R. W. THOMAS.

---

### TEN THOUSAND MILES RUNNING SHOWS VERY LITTLE WEAR.

The car has just completed ten thousand miles, and, considering the rough roads and hill work she gets here, there is very little wear.

(Signed) RICHARD HOWARD.

North Cornwall.

## ONE HUNDRED AND THIRTY MILES TO SIX GALLONS PETROL—16-20 H.P. CAR.

August 31, 1907.

Under separate cover I am sending you a photograph of my Argyll after it has completed its first ten thousand miles, and, as its behaviour has been remarkably good, I think it is only due to you to tell you of it.

Getting my car as I did in mid-winter last, it has been subjected to all the vagaries of the elements in a season that has been unusal for its wet and otherwise disagreeable weather, so that a record has been made in very adverse weather conditions.

The car has never been touched by anyone but yourselves, so you know how little it has had done to it.

It is to the engine, however, that belongs the most credit, for in lubricating consumption I have used less than ten gallons of cylinder oil in the ten thousand miles of running, and, as I followed what I consider a safe policy of over-lubricating for the first thousand miles or more, the average running since that works out over twelve hundred miles to the gallon, and that the engine has never been starved for oil is evidenced by the fact that it runs as smoothly and quietly to-day as the day it left your works.

My experience with tyres also has demonstrated the fact that your car is easy on tyres, for the set supplied by you with the car were run continuously for six thousand miles; they were then taken off and examined, and, but for bad cuts and gashes, the front covers seemed to be in perfect condition internally.

In petrol consumption I have found the car very economical, but unfortunately I have not kept a record of the amount used, but this I am doing from now, and I will be pleased to report you later.

On one occasion, with five passengers, in the South of England, the car did one hundred and thirty miles on just over six gallons. The total mileage I know to be correct, as it was registered by a Warner's autometer, which I frequently checked up on the run from Glasgow to Carlisle.

(Signed) P. E. DOOLITTLE.

Wellington Street, Coventry.


**An Argyll under escort loading Merchandise during the recent Belfast Dock Strike Riots.**

## DIFFERENT FROM THE OTHERS.

I may say that I am very well pleased with my car; the running is entirely different from my last one (not an Argyll). I have done nearly three thousand miles without any breakdown

(Signed) MARY GRAY.

Shrewsbury.

## THE 14-16 H.P. ARGYLL IS THE BEST VALUE IN THE MARKET.

I had a splendid run up, and covered eight hundred and fifty miles from the time I left Swanage until I arrived here. The car went like a bird all the time.

The 14-16 H.P. Argyll is the best value in the market. I have done two thousand six hundred miles, and not spent one penny on repairs. My car was much admired at Reliability Meet at Braemar yesterday.

Helensburgh. (Signed) P. L. WRIGHT.

**The 14-16 H.P. Argyll as a Hill Climber. Taking the dreaded Cairn-o'-Mount Hill in Aberdeenshire. Length, two and a-half miles; Grade, one in five; Average Grade, one in seven.**

## ALWAYS CERTAIN OF GETTING BACK AT THE TIME APPOINTED.

I should like to vouch for the sterling quality of your cars, as this is the first penny mine has cost me for repairs since I purchased her. I do on an average from two hundred to two hundred and fifty miles per week, summer and winter, on some of the stiffest roads for motors in England, and I would match her for speed and reliability against a good many cars at a higher price. When I go out with her I

am always certain of getting back at the time appointed, which is more than I can say of the other two cars which I have.

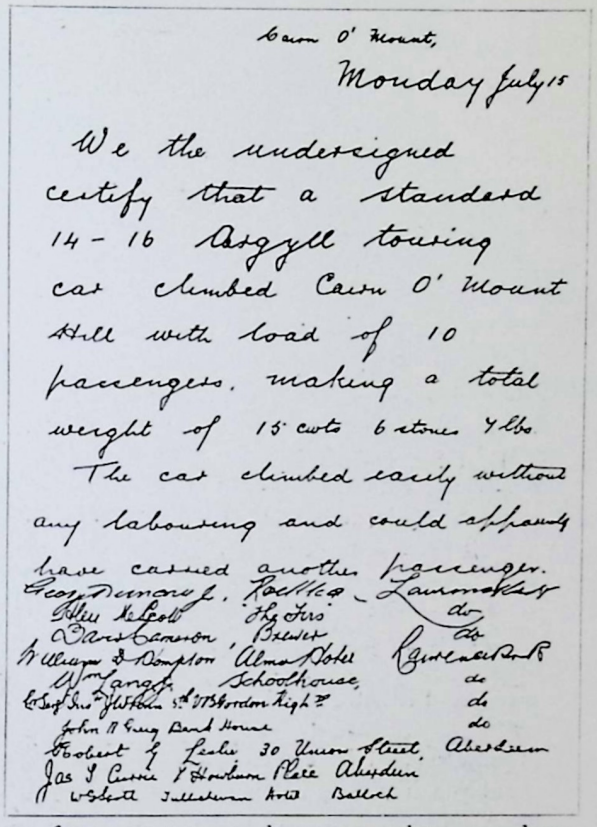
(Signed) J. C. PATERSON.
Hexham-on-Tyne.

---

THE CAR THAT DOES N'T PITCH ABOUT.

Dear Sirs,—When I ordered my Argyll I reckoned I had fixed on the "World's Best" for the money, yet, for all that, I was prepared to experience some little vexations and trouble even with it.

I had delivery on 1st of May, and in three months I have run nearly four thousand miles with it, and these three months have been one agreeable disappointment. I bargained to have some trouble from experience of my first, but I have the greatest pleasure in saying that, in the twelve weeks' work, the only untoward items I have to remark are four punctures, and an accumulator run down. After the first week's running the petrol consumption was adjusted to one gallon per twenty miles, while, for the month of July, the record shows twenty-two miles per gallon.


Cairn O' Mount,
Monday July 15

We the undersigned certify that a standard 14 - 16 Argyll touring car climbed Cairn O' Mount Hill with load of 10 passengers, making a total weight of 15 cwts 6 stones 4 lbs

The car climbed easily without any labouring and could apparently have carried another passenger.

The flexibility and silent sweetness of the engine, the comfort and gracefulness of the tonneau, and the manner in which the car "hugs" the road and doesn't pitch about, have been the subjects of favourable comment by my friends during the season.

I am perfectly satisfied with it, and have the greatest pleasure in stating it in compliment to your 1907 14-16 H.P. product.—Yours respectfully,

Carnoustie. (Signed) A. DUNCAN.

---

NOT ONE PENNY OF EXPENSE.

Woodhall Spa, October 19th, 1907.

Dear Sirs,—I beg to inform you that I have now been nine thousand miles on my Argyll car without one penny of expense to the engine or any part of the car except tyres.

(Signed) W. A. DICKENSON.

## SMOOTH AND NOISELESS RUNNING.

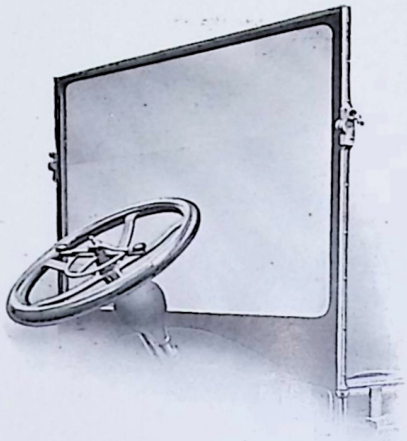
Dear Sir,—I have been running the 14-16 H.P. Argyll landaulet car which I bought from you for about four months, and it has given me every satisfaction.

I can get the full speed out of it when I require, and I am the most pleased with the quiet and smooth running at a slow pace upon the top gear.

A steady fifteen miles an hour, and such smooth and noiseless, is a comfort which no one who has experienced it can fail to appreciate.—I am, Dear Sir, yours truly.

(Signed) E. C. LEVENTON.

Liverpool.



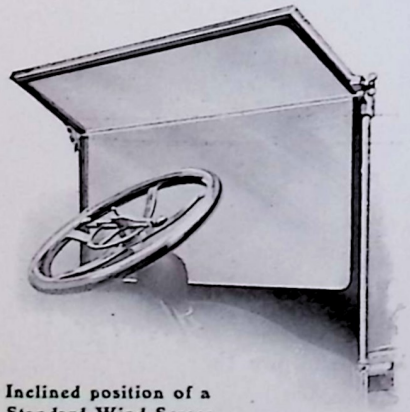
Up position of a Standard Wind Screen.

---

## A PLEASURE TO DRIVE SUCH A FLEXIBLE ENGINE.

Gentlemen,—I have great pleasure in letting you know that the 14-16 Argyll I got from you in the spring is going splendidly. I have had no trouble, and, as far as I can judge, from the careful construction of the car, there is not likely to be any.

I have run the car over two thousand miles, mostly touring, and have not had an involuntary stop. As I did not take a chauffeur away with me, I know from experience that very little attention is required to keep the car in perfect running order.



Inclined position of a Standard Wind Screen.

It is a great pleasure to drive such a smooth, flexible engine, and the way she climbs a hill on top speed is wonderful.

I must thank you for the kind interest in the car since I got her, and feel that it is worth a good deal to an owner of a car to have expert men, such as you have, ready to give advice on any adjustment required.—Yours truly,

(Signed) WILLIAM HORTON.

# What the Press says.

*The Scottish Reliability Trials were probably the stiffest test of endurance ever undergone by the modern motor car, and, dealing with these trials, the following notices are culled from many similar:—*

We had not long started when it became evident that the 14-16 H.P. engine was a "puller" of the best description, everything being taken on top gear.

The thing which impressed us was the great reserve power in the engine, the flexibility of which was such as to make driving the easiest thing imaginable.

The timed test at Aberfeldy was accomplished on top and second speeds in a time which secured the Argyll second in its class in point of actual time on the hill.

The manner in which it climbed the surprise incline at Blanefield drew cheers from the onlookers.—*Motor World.*

---

In hill climbing all these cars did well, the 14-16 H.P. showing up best, being first on the Cairn, and second and third on the others on point of time.

The Argylls were unique in having the only non-stops in Classes 2 and 3, and in being the two lowest-powered cars to get round with clean sheets.—*Motor.*

---

A WONDERFUL FEAT.

We have received an account of a most meritorious feat performed by a 14-16 H.P. Argyll, which, in the able hands of Mr. W. G. Scott, made fastest time in its class up the formidable Cairn-o'-Mount Hill in the Scottish Reliability Trials. He took the same car up the same hill with a load of ten passengers, aggregating fifteen cwts. six lbs. The gradient at the start is one in five and varies to one in seven during the remainder of the climb, so the car had its hardest work at the start. The hill is the most redoubtable one in the Trials route, and the success of the Argyll is to be envied.—*Motoring Illustrated.*

---

This year's Argylls are remarkably quiet and run with great smoothness. When cycling one morning recently, we were passed by Mr. W. R. M'Taggart, who drove for some little distance alongside us, the car running with almost absolute silence.—*Motor News*, September 28th, 1907.

# Price List of Extras.

| | £ | S. | D. |
|---|---|---|---|
| 1. Magneto, fitted complete, 12-16 H.P., | 22 | 10 | 0 |
| 2. Magneto, fitted complete, 14-16 H.P., 16-20 H.P., and 26-30 H.P. Cars, | 25 | 0 | 0 |
| 3. Magneto, with all Fittings, but not fitted, 14-16 H.P., 16-20 H.P., and 26-30 H.P. Cars, | 23 | 10 | 0 |
| 4. Cape Cart Hood, with Side Curtains, 12-16 H.P., 14-16 H.P., and 16-20 H.P. Cars, | 20 | 0 | 0 |
| 5. Cape Cart Hood, with Side Curtains, 26-30 H.P. and 40 H.P. Cars, | 24 | 0 | 0 |
| 6. Hood, having Curtain at back of Driver's Seat, extra, | 2 | 10 | 0 |
| 7. Folding Glass Wind Screen, | 8 | 0 | 0 |
| 8. Canopy and Glass Wind Screen—12-16 H.P. and 14-16 H.P. Cars, | 32 | 0 | 0 |
| 16-20 H.P. Car, | 36 | 0 | 0 |
| 26-30 H.P. Car, | 40 | 0 | 0 |
| 40 H.P. Car, | 45 | 0 | 0 |
| 9. Adjustable Foot Rest for inside of Car, | 2 | 2 | 0 |
| 10. Body Irons for Hood or Canopy, when Hood or Canopy not fitted, | 3 | 0 | 0 |
| 11. Outfit of Tools, Spares, etc., | 11 | 10 | 0 |
| 12. Doolittle Detachable Rims, including supply of Spare Rim—For 90 m/m Tyres, | 15 | 0 | 0 |
| ,, 105 m/m Tyres, | 17 | 10 | 0 |
| ,, 120 m/m Tyres, | 19 | 0 | 0 |
| ,, 135 m/m Tyres, | 21 | 0 | 0 |
| 13. Detachable Folding Luggage Grid, | 2 | 0 | 0 |
| 14. Safety Locks to Doors, each, | 0 | 10 | 0 |
| 15. Side Doors to Driver's Seat—Covered Cars, | 3 | 3 | 0 |
| 16. Long Tool Boxes under Side Platforms, with Doors opening down, | 8 | 0 | 0 |
| 17. Leather Shields between Chassis and Side Platforms, | 4 | 4 | 0 |
| 18. Canvas Covers for Driver's Seat, | 3 | 3 | 0 |
| 19. Canvas Covers for Tonneau Seats of Open Cars, | 4 | 4 | 0 |
| 20. Leather Watch, Glove, and Sundry Pocket for Tonneau, | 3 | 3 | 0 |
| 21. Crests on Side Doors, | 1 | 1 | 0 |
| 22. Pile Carpet for Tonneau—Open Cars, | 2 | 2 | 0 |
| 23. Rubber Mat for Tonneau, | 0 | 17 | 6 |
| 24. Wire Netted Roof Rail, | 3 | 3 | 0 |
| 25. Ventilator in Roof of Limousine, | 4 | 4 | 0 |
| 26. Electric Light, with Accumulator—Covered Cars, | 6 | 6 | 0 |
| 27. Speaking Tube, | 2 | 2 | 0 |
| 28. Additional Folding Seat, | 4 | 0 | 0 |
| 29. Head Lamp Brackets, with Stay, Plated, | 2 | 15 | 0 |
| 30. Head Lamp Brackets, Plated, without Stay, | 2 | 10 | 0 |
| 31. Identification Plates, Painted, | 0 | 12 | 6 |
| 32. Tyre Carrier Brackets, | 1 | 10 | 0 |
| 33. Electric Lamp on Steering Pillar, including Wiring, but no Accumulator, | 1 | 10 | 0 |

## Outfit, Price, £11 10s.

Set Lamps.
Horn.
Tool Box.
Tyre Repair Outfit.
Tyre Inflator.
Set D.E. Screw Keys.
Lifting Jack and Handle.
Rubber Mat for Front Footboard.
Grease Injector.
Brass Oil Can (Petrol).
Two Fillers.
Two Sparking Plugs and Washers.
Wood Works Outfit.
Hammer.
Carburettor Key.
Fan Key.
Spare Bolts, Nuts, and Washers.
Chisel.
Three Files.
Copper Drift.
Pair Pliers.
Two Steel Punches.
Sheet Emery Cloth.
Two Spare Inlet or Outlet Valves.

# Argyll Colour Schemes.

THE undernoted are the standard colour schemes for side entrance cars. Mudguards are, in all cases, enamelled black.

An extra charge, not exceeding £5, is made for the bodies finished to specifications other than standard.

| LETTERS DENOTING COLOUR SCHEME. | BODY COLOUR. | LEATHER. | LINES. | WHEELS. |
|---|---|---|---|---|
| B.B., | Green. | Green. | Light Green. | Green. |
| D., | Green. | Green. | White. | Green. |
| H., | Blue. | Blue. | Red. | Blue. |
| J., | Blue. | Blue. | White. | Blue. |
| M., | Red. | Red. | Black. | Red. |

Landaulets and limousines are finished in dark blue and dark green, being upholstered in leather or cloth to match.

# Overall Dimensions of Argyll Cars.

THE following table, showing the overall dimensions of Argyll cars, has been compiled for the information of those prospective motorists desiring to utilise their existing coach house or stable as a garage, or those purchasers who, designing a new motor house, may wish to know what car space will be required :—

| TYPE. | WHEEL BASE | LENGTH. | WIDTH. | HEIGHT. |
|---|---|---|---|---|
| 14–16 Side Entrance, | 8 ft. 4 in. | 12 ft. 6 in. | 5 ft. 2 in. | 5 ft. 3 in. |
| ,, ,, with hood up, | 8 ft. 4 in. | 12 ft. 6 in. | 5 ft. 2 in. | 7 ft. 5 in. |
| ,, ,, with hood folded, | 8 ft. 4 in. | 13 ft. 6 in. | 5 ft. 2 in. | 5 ft. 6 in. |
| ,, Single Landaulet, | 9 ft. 0 in. | 13 ft. 0 in. | 5 ft. 2 in. | 7 ft. 0 in. |
| ,, Limousine, | 9 ft. 0 in. | 13 ft. 0 in. | 5 ft. 2 in. | 7 ft. 0 in. |
| ,, City Carriage, | 6 ft. 10 in. | 10 ft. 8 in. | 5 ft. 5 in. | 7 ft. 4 in. |
| 16–20 Side Entrance, | 9 ft. 0 in. | 13 ft. 0 in. | 5 ft. 3 in. | 5 ft. 5 in. |
| ,, ,, with hood up, | 9 ft. 0 in. | 13 ft. 0 in. | 5 ft. 3 in. | 7 ft. 7 in. |
| ,, ,, with hood folded, | 9 ft. 0 in. | 14 ft. 0 in. | 5 ft. 3 in. | 5 ft. 8 in. |
| ,, Seven-seater Side Entrance, | 9 ft. 9 in. | 13 ft. 10 in. | 5 ft. 3 in. | 5 ft. 5 in. |
| ,, Three-quarter Landaulet, | 9 ft. 9 in. | 13 ft. 10 in. | 5 ft. 3 in. | 7 ft. 7 in. |
| ,, Limousine, | 9 ft. 9 in. | 13 ft. 10 in. | 5 ft. 3 in. | 7 ft. 7 in. |
| 26–30 Side Entrance, | 9 ft. 3 in. | 13 ft. 4 in. | 5 ft. 7 in. | 5 ft. 5 in. |
| ,, ,, with hood up, | 9 ft. 3 in. | 13 ft. 4 in. | 5 ft. 7 in. | 7 ft. 7 in. |
| ,, ,, with hood folded, | 9 ft. 3 in. | 14 ft. 4 in. | 5 ft. 7 in. | 5 ft. 8 in. |
| ,, Three-quarter Landaulet, | 10 ft. 0 in. | 14 ft. 1 in. | 5 ft. 5 in. | 7 ft. 8 in. |
| ,, Limousine, | 10 ft. 0 in. | 14 ft. 1 in. | 5 ft. 7 in. | 7 ft. 8 in. |
| 40 H.P. Side Entrance, | 9 ft. 8 in. | 13 ft. 8 in. | 6 ft. 0 in. | 5 ft. 6 in. |
| ,, ,, with hood up, | 9 ft. 8 in. | 13 ft. 8 in. | 6 ft. 0 in. | 7 ft. 8 in. |
| ,, ,, with hood folded, | 9 ft. 8 in. | 14 ft. 8 in. | 6 ft. 0 in. | 5 ft. 9 in. |
| ,, Seven-seater Side Entrance, | 10 ft. 4 in. | 14 ft. 4 in. | 6 ft. 0 in. | 5 ft. 6 in. |
| ,, Three-quarter Landaulet, | 10 ft. 4 in. | 14 ft. 4 in. | 6 ft. 0 in. | 7 ft. 8 in. |
| ,, Limousine, | 10 ft. 4 in. | 14 ft. 4 in. | 6 ft. 0 in. | 7 ft. 8 in. |

# Guarantee and Terms.

The following guarantee is given with Argyll Motor Cars, instead of the guarantee implied by statute or otherwise as to the quality or fitness of goods supplied for the purpose of motoring; any such implied guarantee being in all cases excluded:—

In the case of cars which have been in use for "hiring out" purposes, no guarantee of any kind is given or is to be implied.

It is guaranteed, subject to the conditions mentioned below, that all precautions which are usual and reasonable have been taken to secure excellence of materials and workmanship, but the purchaser shall not be entitled to claim any damages for injury to his car or occupants. Argyll Motors, Limited, undertake, subject to the conditions mentioned below, to make good, at any time within **TWELVE MONTHS** from date of purchase, defects in their cars, except in regard to tyres or any special fittings that may be specified and supplied. This guarantee does not apply to defects caused by wear and tear, misuse, or neglect.

## CONDITIONS OF GUARANTEE.

If any replacement is required under this guarantee, the part must be sent to the factory at Alexandria CARRIAGE PAID, accompanied by an intimation from the sender that he desires to have it replaced or repaired free of charge under the guarantee, giving at the same time the number of the car, name of the agent from whom he purchased, and the date of purchase.

This guarantee must be understood to end with the replacement or repair of the faulty part or parts, and the Company cannot accept any responsibility for any other expense to which the owner may be put.

This guarantee only applies to those cars which are bought either direct from Argyll Motors, Limited, or from any of their duly authorised agents.

The term "AGENT" is used in a complimentary sense only, and those firms who are styled agents are not authorised to advertise, incur any debts, or transact any business whatsoever on the account of Argyll Motors, Limited; nor are they authorised to give any warranty or make any representations on their behalf other than those contained in the above guarantee.

The printed specifications of the various types of cars as detailed are those in force at the time of issue of this Catalogue.

The Company reserve the right to so far amend or modify the specifications of their cars at any time as they may consider necessary, without any notice being given to the public. Alterations also may be made in prices.

This Catalogue cancels all previous issues.

## TERMS OF BUSINESS.

Prices quoted in this Catalogue are NETT CASH.

Delivery is made either at the works in running order, F.O.R., or free alongside vessel, Glasgow.

One-third cash must accompany the order, and balance on intimation that the car is at the purchaser's disposal in the works.

In the event of an order being placed for a car differing in colour or other details from the standard as specified in the Catalogue, a special deposit of ten per cent. of the invoice value will be required, this deposit being forfeited if the order is materially altered or cancelled.

On receiving goods, customers should carefully inspect them, and, if damaged, make an immediate claim on the carriers for same, as these are signed for as being received in good condition by the railway or shipping companies, the latter becoming the agent for the purchaser. The purchaser pays all carriage charges, etc.

Cheques and Post Office Orders should be made payable to "Argyll Motors," Limited, and crossed &c. Co.

*Customers' Cars are only driven by the Company's Employees at Customers' risk.*

**All Repairs or Alterations must be paid for when completed, and before the car or part, as the case may be, is returned to the owner.**

# Shipping Dimensions.

The following table gives approximate dimensions of the various models of Argyll cars as packed for shipment.

For export, cars are securely packed in suitable cases lined with water and damp-proof material. These cases are charged at cost price, and are not returnable.

Where necessary for home shipment, cars are packed in strong crates; these crates are chargeable, but the amount is credited in full on the crate being returned to the factory in good condition and carriage paid.

| Type. | Length. | | Width. | | Height. | | Cubic Feet. | Cost of Packing. |
|---|---|---|---|---|---|---|---|---|
| | Ft. | In. | Ft. | In. | Ft. | In. | | |
| 14-16 Side Entrance, | 13 | 0 | 5 | 8 | 5 | 9 | 422 | £8 |
| ,, Single Landaulet, | 13 | 6 | 5 | 8 | 7 | 6 | 572 | 10 |
| ,, Limousine, | 13 | 6 | 5 | 8 | 8 | 0 | 612 | 10 |
| 16-20 Side Entrance, | 13 | 6 | 5 | 10 | 5 | 11 | 464 | 8 |
| ,, Seven-seater, | 14 | 4 | 5 | 10 | 5 | 11 | 490 | 8 |
| ,, Three-quarter Landaulet, | 14 | 4 | 5 | 10 | 7 | 7 | 641 | 10 |
| ,, Limousine, | 14 | 4 | 5 | 10 | 8 | 1 | 675 | 10 |
| 26-30 Side Entrance, | 13 | 10 | 6 | 1 | 5 | 11 | 500 | 8 |
| ,, Seven-seater Side Entrance, | 14 | 7 | 6 | 1 | 5 | 11 | 525 | 10 |
| ,, Three-quarter Landaulet, | 14 | 7 | 5 | 11 | 8 | 0 | 695 | 12 |
| ,, Limousine, | 14 | 7 | 6 | 1 | 7 | 10 | 695 | 12 |
| 40 H.P. Side Entrance, | 14 | 2 | 6 | 6 | 6 | 0 | 552 | 10 |
| ,, Seven-seater Side Entrance, | 14 | 10 | 6 | 6 | 6 | 0 | 580 | 10 |
| ,, Three-quarter Landaulet, | 14 | 10 | 6 | 6 | 7 | 8 | 740 | 12 |
| ,, Limousine, | 14 | 10 | 6 | 6 | 8 | 2 | 788 | 12 |

# Argyll Cars for 1908 Complete Price List.

| TYPE. | ENGINE. | | | GEARS. | | WHEEL BASE. | TYRES. | CHASSIS PRICE. | CAR PRICE. |
|---|---|---|---|---|---|---|---|---|---|
| | REVS. | BORE. | STROKE. | NO. OF SPEEDS. | MILES PER HOUR. | | SIZE. | | |
| **12-16 H.P.—** | | | | | | Ft. In. | | | |
| Side Entrance, | 1,100 | 84 m/m | 110 m/m | 3 | 28 | 8 4 | 810 × 90 | £300 | £340 |
| Two-seater, | ... | ... | ... | 3 | 28 | 8 4 | 810 × 90 | 300 | 330 |
| **14-16 H.P. Standard—** | | | | | | | | | |
| Side Entrance, | 1,100 | 90 m/m | 120 m/m | 3 | 30 | 8 4 | 810 × 90 | £310 | £355 |
| Two-seater, | ... | ... | ... | 3 | 30 | 8 4 | 810 × 90 | 310 | 340 |
| Single Landaulet, (Fixed pillars and roof extension.) | ... | ... | ... | 3 | 25 | 9 0 | 815 × 105 | 325 | 485 |
| Limousine, | ... | ... | ... | 3 | 25 | 9 0 | 815 × 105 | 325 | 510 |
| Detachable Top Limousine, | ... | ... | ... | 3 | 25 | 9 0 | 815 × 105 | 325 | 510 |
| Station Brougham, | ... | ... | ... | 3 | 25 | 6 10 | 815 × 105 | ... | 425 |
| **14-16 H.P. *Model-de-luxe*—** | | | | | | | | | |
| Side Entrance, | 1,100 | 90 m/m | 120 m/m | 3 | 30 | 8 4 | 810 × 90 | £325 | £375 |
| Two-seater, | ... | ... | ... | 3 | 30 | 8 4 | 810 × 90 | 325 | 355 |
| Single Landaulet, (Fixed pillars and roof extension.) | ... | ... | ... | 3 | 25 | 9 0 | 815 × 105 | 340 | 495 |
| Limousine, | ... | ... | ... | 3 | 25 | 9 0 | 815 × 105 | 340 | 520 |
| Detachable Top Limousine, | ... | ... | ... | 3 | 25 | 9 0 | 815 × 105 | 340 | 520 |
| City Carriage Landaulet, | ... | ... | .. | 3 | 25 | 6 10 | 815 × 105 | 340 | 495 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| **16-20 H.P.—** | | | | | | | | | | |
| Side Entrance, - - - - - | 1,100 | 95 m/m | 130 m/m | 3 | 32 | 9 | 0 | 875 × 105 | £390 | £450 |
| Seven-seater Side Entrance, - | ... | ... | ... | 3 | 28 | 9 | 9 | 875 × 105 | 495 | 500 |
| Three-quarter Landaulet, - - (Fixed pillars and roof extension.) | ... | ... | ... | 3 | 28 | 9 | 9 | 880 × 120 | 495 | 645 |
| Limousine, - - - - - - | ... | ... | ... | 3 | 28 | 9 | 9 | 880 × 120 | 495 | 645 |
| Detachable Top Limousine, - - | ... | ... | ... | 3 | 28 | 9 | 9 | 880 × 120 | 495 | 645 |
| **26-30 H.P.—** | | | | | | | | | | |
| Side Entrance, - - - - - | 1,100 | 105 m/m | 140 m/m | 3 | 37 | 9 | 3 | 920 × 120 | £490 | £550 |
| Seven-seater Side Entrance, - | ... | ... | ... | 3 | 31 | 10 | 0 | 920 × 120 | 595 | 600 |
| Three-quarter Landaulet, - - (Fixed pillars and roof extension.) | ... | ... | ... | 3 | 31 | 10 | 0 | 920 × 120 | 595 | 745 |
| Limousine, - - - - - - | ... | ... | ... | 3 | 31 | 10 | 0 | 920 × 120 | 595 | 745 |
| Detachable Top Limousine, - - | ... | ... | ... | 3 | 31 | 10 | 0 | 920 × 120 | 595 | 745 |
| **40 H.P.—** | | | | | | | | | | |
| Side Entrance, - - - - - | 1,100 | 120 m/m | 140 m/m | 4 | 47 | 9 | 8 | 920 × 120 | £585 | £650 |
| Seven-seater Side Entrance, - | ... | ... | ... | 4 | 47 | 10 | 4 | 920 × 120 | 600 | 700 |
| Three-quarter Landaulet, - - (Fixed pillars and roof extension.) | ... | ... | ... | 4 | 37 | 10 | 4 | 920 × 120 | 600 | 845 |
| Limousine, - - - - - - | ... | ... | ... | 4 | 37 | 10 | 4 | 920 × 120 | 600 | 845 |
| Detachable Top Limousine, - - | ... | ... | ... | 4 | 37 | 10 | 4 | 920 × 120 | 600 | 845 |

Extra for Three-quarter Landaulet having folding pillars, and with roof extension and wind screen, made detachable, - - - - £30

Extra for 14-16 H.P. Landaulet having folding pillars, and with roof extension and glass screen, made detachable, - - - - 15

# INDEX.





McCorquodale & Co. Ltd., Glasgow & London.