Ariel

Motor Bicycles

1911

MOTOR BICYCLES

THREE MODELS AND SIDE CARS

ARIEL WORKS
BOURNBROOK, BIRMINGHAM

1911

INTRODUCTION

THE Single-cylinder Motor Bicycle correctly constructed and designed and fitted with a flexible and medium-powered engine, such as our Ariel 3½-h.p., has again proved itself the best type of Motor Bicycle for all general and touring purposes, particularly when fitted with a Variable Gear and Free Engine.

During the past season Ariels have again proved themselves at least equal to any other make of Motor Bicycle on the market. They have given every satisfaction to their owners, and a large number of GOLD MEDALS AND FIRST AWARDS have been secured by riders of Ariels in Open Competition, including Reliability Trials, Speed Contests, Hill Climbs and Petrol Consumption Trials. The Ariel in the 1910 International Tourist Trophy Race in the Isle-of-Man was the second fastest make of Single-cylinder.

As the *Pioneer Makers of All-British Motor Cycles*, with an unequalled experience extending over thirteen years, we look forward with every confidence to the forthcoming season. A number of improvements will be embodied in 1911 Ariels, full particulars of which will be found in the following pages, but we would draw particular attention to our new starting device, which enables the machine to be easily started by a boy of 12.

GUARANTEED EASY STARTING.

Our confidence in the easy starting of Ariels is such that we are prepared to guarantee that we can start each Ariel so fitted within a few yards at walking pace. We will accept return of the machine and refund the full amount paid to us for any Bicycle that does not start with the ease we claim for it.

In addition to our Variable Gear Model, we make an Adjustable Pulley Model with rubber studded foot-plates, also an Adjustable Pulley Model with pedaling gear and foot rests.

ARIEL MOTOR BICYCLE GUARANTEE

WE give the following guarantee with our Motor Bicycles, instead of the guarantee implied by statute, or otherwise, as to the quality or fitness of such machines for the purpose of cycling; any such implied guarantee being in all cases excluded. In the case of machines which have been used for "hiring-out" purposes, or in respect of which our Trade Mark or Manufacturing Number has been removed, no guarantee of any kind is given or is to be implied.

WE GUARANTEE,

subject to the conditions mentioned below, that all precautions which are usual and reasonable have been taken by us to secure excellence of materials and workmanship, but this guarantee is to extend and be in force for three months only from the date of purchase, and damages for which we make ourselves responsible under this guarantee are limited to the repair or replacement of any part which may have proved defective. We undertake, subject to the conditions mentioned below, to make good at any time within three months any defects in these respects. As Motor Cycles are easily liable to derangements by neglect or misuse, this guarantee does not apply to defects caused by wear and tear, misuse or neglect.

CONDITIONS OF GUARANTEE

If a defective part should be found in our Motor Bicycles it must be sent to us by passenger train, carriage paid, and accompanied by an intimation from the sender that he desires to have it repaired free of charge under our guarantee, and he must also furnish us at the same time, with the number of the machine, the name of the agent from whom he purchased, and the date of the purchase.

Failing compliance with the above, no notice will be taken of anything which may arrive, but such articles will lie here at the risk of the sender, and this guarantee, and any implied guarantee, shall not be enforceable.

We guarantee only those machines which are bought either direct from us or from one of our duly authorised Agents, and under no other conditions.

We do not guarantee the specialities of other firms such as Tyres, Saddles, Belts, etc., or of any component part supplied to the order of the purchaser, differing from our standard specification, supplied with our Motor Bicycle or otherwise.

THE TERM AGENT

Is used in a complimentary sense only, and those firms whom we style our Agents, are not authorised to advertise, incur any debts, or transact any business whatsoever on our account, other than the sale of goods which they may purchase from us; nor are they authorised to give any warranty or make any representation on our behalf other than those contained in the above guarantee.

GOLD MEDALS.

Midland Exhibition ..	1903
London to Edinburgh ..	1904
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Scottish Reliability Trials	1905
Newcastle M.C.C. ..	1909
London to Edinburgh, 4 Medals	1910
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FIRST AWARDS.

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Lincolnshire M.C.C. ..	1907
Lincolnshire M.C.C. ..	1908
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Eagle Cup	1910
Bishop Auckland and District M.C.C. ..	1910
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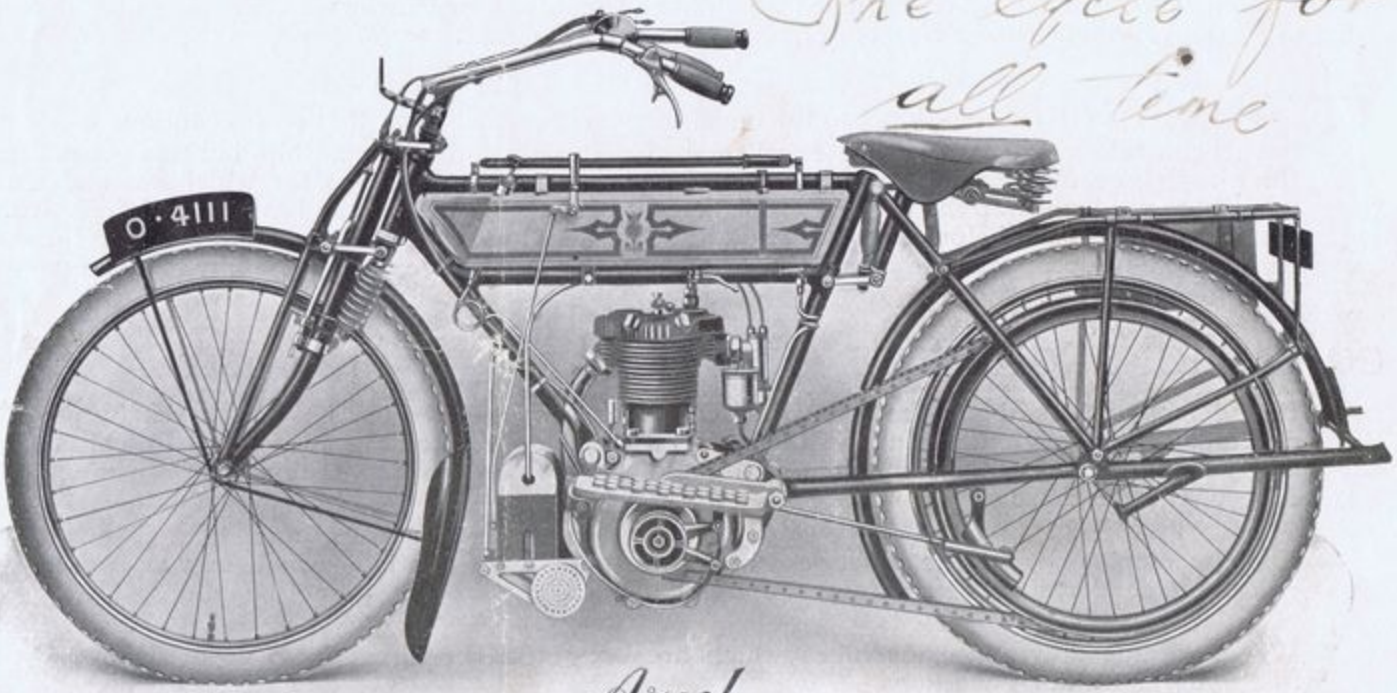
Ariel 3½-h.p MOTOR BICYCLE

EASIEST TO START.

The cycle for all time



ARIEL PATENT DECOMPRESSOR (FOR EASY STARTING), VARIABLE GEAR AND FREE ENGINE.

ADJUSTABLE PULLEY MODELS, see pages 10 to 13.

Ariel 3½-h.p. MOTOR BICYCLE

GUARANTEED EASY STARTING.

SPECIFICATION.

ENGINE—3½ h.p., 85×85 m/m, large mechanically operated valves, adjustable tappets with vertical lift.

GEAR—Ariel patent variable gear, with adjustable pulley and free engine.

CARBURETTER—B. and B. specially adapted and very economical.

CONTROL—Handlebar.

IGNITION—Magneto, high-tension, ball bearing and chain-driven, with aluminium chain case.

SILENCER—Latest improved pattern, with cut-out; very silent.

TRANSMISSION—⅞in. rubber belt.

FRAME—Low saddle position and long wheelbase, specially designed.

FORKS—Latest pattern spring forks, truly vertical movement.

FOOT-PLATES—Aluminium, with rubber studs.

WHEELS—Equal 26in. Very strong.

MUDGUARDS—Large and wide, with mud flap.

TYRES—Liberty, rubber-studded, motor cycle, 26×2¼in.; other makes to order.

TANK—Latest improved, complete with oil pump, petrol gauge and petrol injector, etc. Petrol capacity, 1½ gallon. Oil, 1 quart.

BRAKES—Foot-applied rear belt rim, hand-applied front rim.

SADDLE—Ariel, large and comfortable, with double top and three coil springs.

STAND—Fixed to rear fork end and secured automatically with patent spring clip.

CARRIER—Strong tubular, over rear wheel.

TOOL BAG—Complete with leather roll and full set of tools, repair outfit, etc.

NUMBER PLATES—Front and rear.

FINISH—Black enamel, frame coslettised, plated bright parts. Tank aluminium, with colored lines.

REFLEX ROAD LIGHT.

MAGNETO COVER.

Supplied with Shorter Wheel Base to order.

FITTED WITH THE ARIEL PATENT DECOMPRESSOR FOR EASY STARTING.

Net Cash Price £50. **Gradual Payment or Exchange Price £55 15 0**

FULL PARTICULARS AND FORM ON APPLICATION.

Spring Seat Pillar, 25/- extra.

ADJUSTABLE PULLEY MODELS, see pages 10 to 13.

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Ariel 3½-h.p. MOTOR BICYCLE

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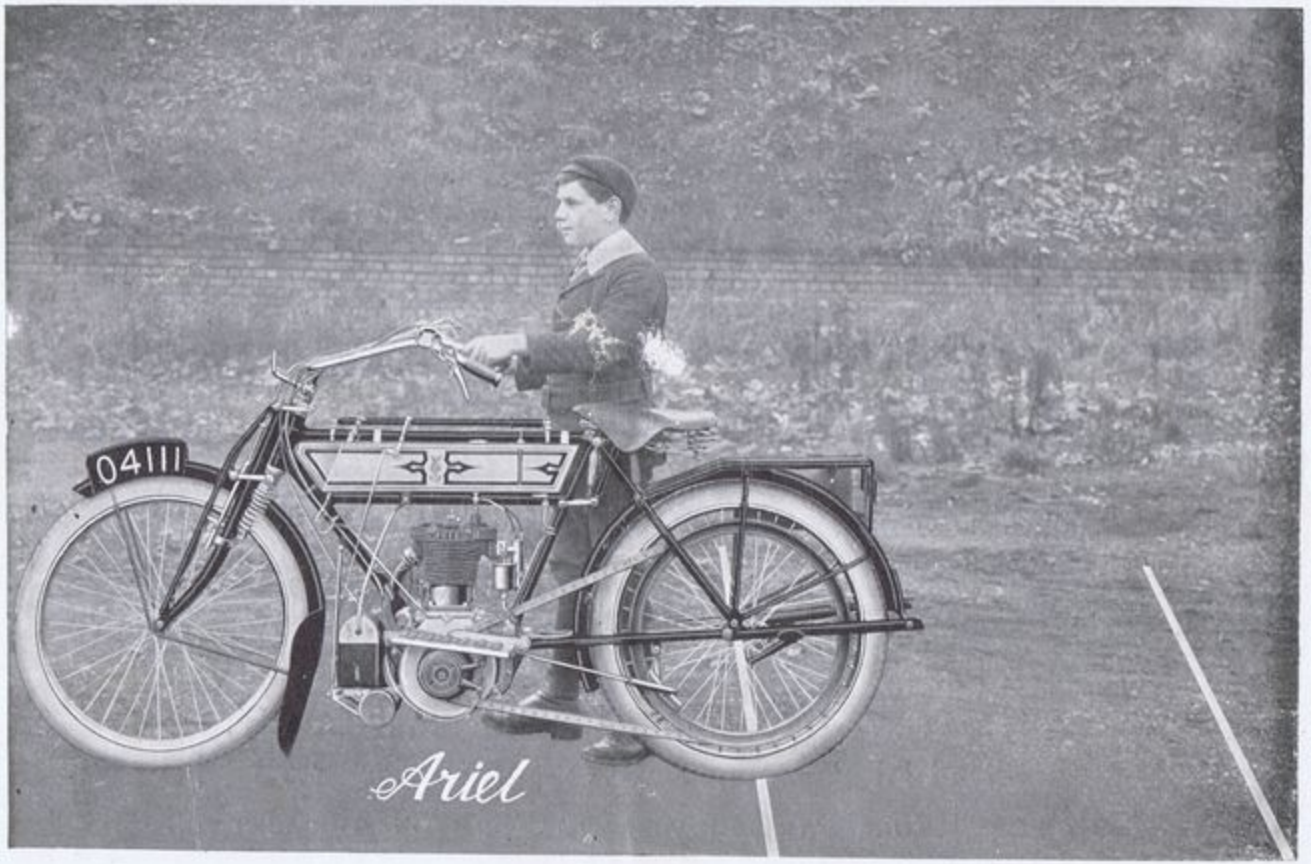

Net Cash Price,

£50

Gradual Payment or Exchange Price,

Full particulars on application.

Spring Seat Pillar,

25/- extra.

WE GUARANTEE THAT ARIEL MOTOR BICYCLES CAN BE EASILY STARTED BY A BOY OF TWELVE WITHIN THE DISTANCE SHOWN.

Ariel MOTOR BICYCLES

EASIEST TO START.

Vide "MOTOR CYCLING," OCT. 25th, 1910. "A REMARKABLE EASY STARTING DEVICE."

" . . . . . We were amazed to see a man leisurely walking round one of the shops with a Motor Bicycle firing with absolute regularity at about four miles an hour. We tried the machine ourselves; and found that there was no need to use the exhaust valve lifter to start, as the machine could be wheeled quite easily and fired at once. This device of course, quite overcomes the starting difficulty with big single cylinders."

GUARANTEED EASY STARTING.

With the Ariel Patent Decompressor we have overcome the starting difficulty previously experienced on some machines. With this device the Ariel Motor Bicycle can be started by slowly walking the machine at two to three miles an hour; the engine will then start up immediately, and be running regularly in the free position within a distance of three yards. Our confidence in the easy starting of Ariels is such that we are prepared to GUARANTEE THAT WE CAN START EACH ARIEL SO FITTED WITHIN A FEW YARDS AT A WALKING PACE. We will accept return of the machine and refund the full amount paid to us for any Bicycle that does not start with the ease we claim for it.

PARTICULARS *RE* STARTING.

To start the engine, the carburetter control levers are first placed in a position to give the best mixture for starting, which, from our experience is for the air lever to be almost closed and the gas or throttle lever about half open. The sparking lever on the left hand side of the tank should be fully advanced or nearly so. The decompressor is brought into operation by releasing the small trigger A on the exhaust lifter lever. The rider takes up his position on the right hand side of the Bicycle, with his right hand on the right handlebar grip, and his left hand on the variable gear lever with one of the low variations of the gear in operation. The machine is then walked forward a few paces, and as this is done, the engine will start up immediately and fire quite regularly, giving just sufficient power to keep the machine in motion without any pushing assistance on the part of the rider. The variable gear operating lever is then pushed down to its lowest, bringing the engine into the free position. The valve lifter lever B is then raised until the end of the small trigger A engages in the stop on the lever plate, the engine will then be running normally under full compression. The rider then takes his seat in the saddle, accelerates the engine by opening the control levers, the gear operating lever is slowly raised, bringing one of the lower variations of gear into operation as explained on page 9. As this is done, the engine takes up the load, and the machine glides slowly forward, the same as a motor car.

SPECIAL NOTE:—Before bringing the engine under full compression, see that it is in the free position.

Ariel

3½-h.p. MOTOR BICYCLE

EASIEST TO START.

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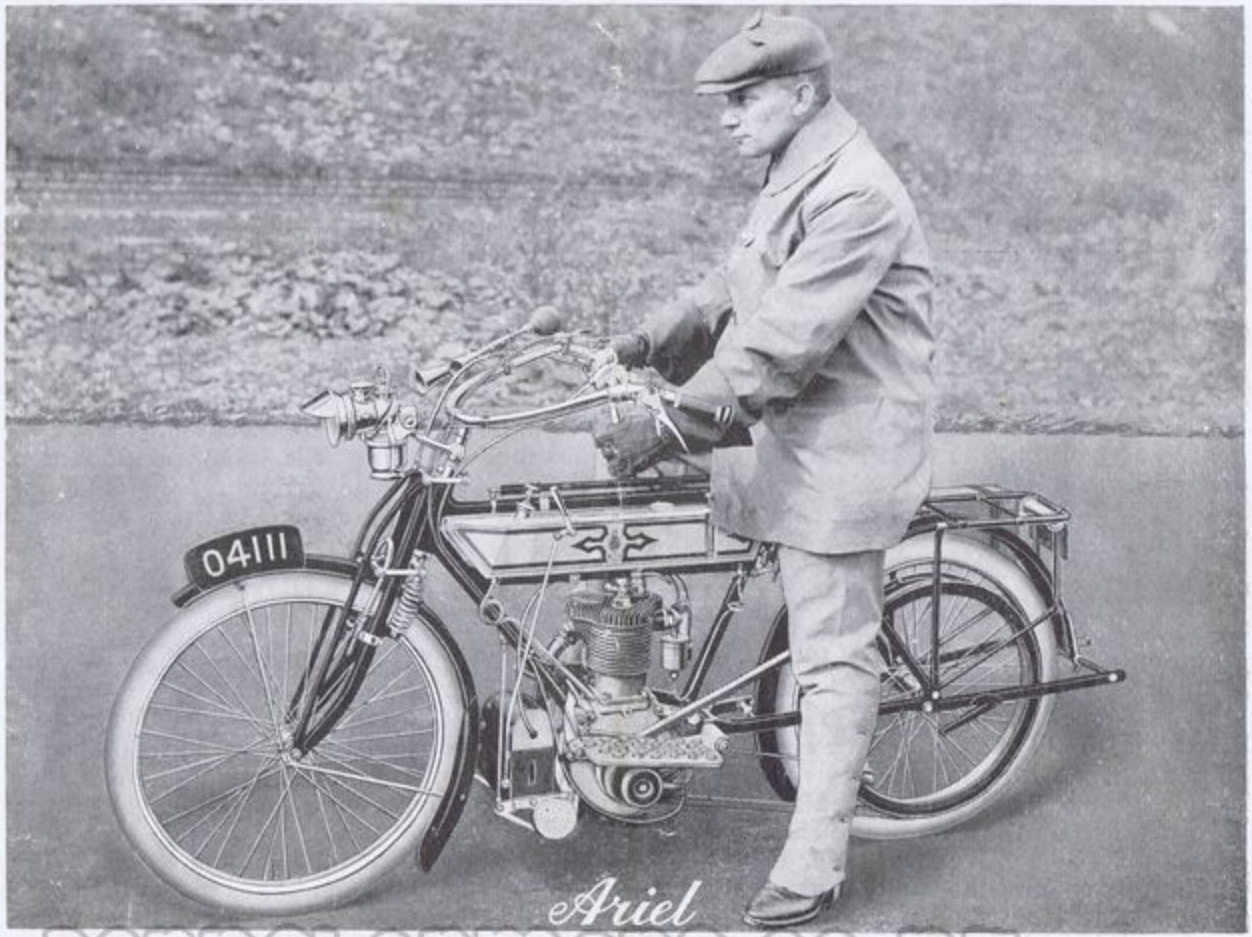

LETTING IN THE GEAR.

WE ARE THE PIONEER MANUFACTURERS OF ALL-BRITISH MOTOR CYCLES.

THIRTEEN YEARS REPUTATION.

GUARANTEED —EASY— STARTING.

Ariel 3½ h.p. MOTOR BICYCLE

LETTING IN THE GEAR

WHEN you have the engine started and are ready to commence your ride, all that remains is to sit on the bicycle, accelerate the engine, and let in the gear, when the machine will slowly glide forward.

The speed of the engine is accelerated by opening the gas and air levers, and when running at a high speed the gear is brought into operation by slowly raising the gear-operating lever, which is fitted on the left-hand side of the handlebar, and is designed so that the rider, whilst letting in the gear, may steer the machine with both hands as in the ordinary way. This is without doubt a distinct advantage when compared with other types of Free Engine mechanism, which necessitates one hand being removed from the handlebar.

To release the lever, slightly depress and twist the handle outwards (*i.e.*, to the left, see page 18). It can then be SLOWLY raised, which closes up the flange of the pulley. After the engine has been accelerated as explained above, slowly raise the gear control lever, at the same time helping the machine forward as much as possible with the feet ; and as this is done, the belt takes up the drive from the engine, transmits it to the rear wheel and the machine slowly glides forward with the ease and smoothness of a motor car. As soon as the machine is under way bring back the control levers into the same position as they would be with the machine running under normal conditions at about 12 miles per hour.

The speed of the machine can be increased as required, by bringing into operation the highest variation or any intermediate gear, and by the manipulation of the air and gas levers.

The Carburetter is very finely adjusted and the engine responds immediately to the slightest movement of the throttle lever, the machine gradually increasing in speed as the levers are opened.

There being no necessity to release the hold on the handlebar whilst operating the gear is exceptionally advantageous for driving in traffic. The machine can be driven at walking pace, and if desired the free engine can be brought into operation and the machine kept stationary, the engine running free the whole of the time. In starting again it is only necessary to accelerate the speed of the engine and slowly let in the gear, the machine gradually gliding forward as the engine picks up the load.

STARTS EASIER THAN A CAR

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Eagle Cup	1[illegible]
Bishop Auckland and District M.C.C. ..	
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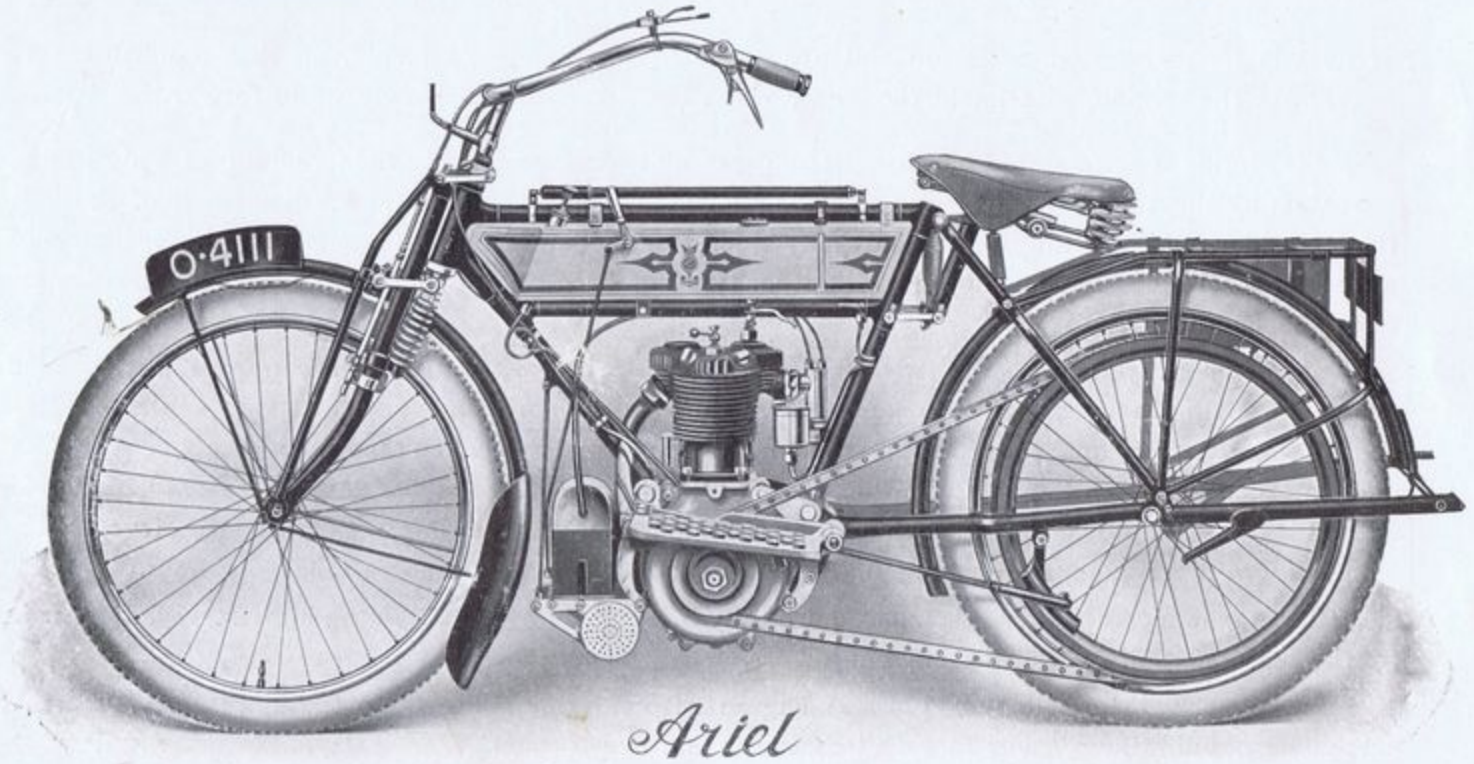
Ariel

3½-h.p. MOTOR BICYCLE

ADJUSTABLE PULLEY MODEL.



Same specification as Variable Gear Model (see page 5), but with an Adjustable Pulley instead of the Variable Gear and Free Engine.

FITTED WITH ARIEL PATENT DECOMPRESSOR FOR EASY STARTING.

Gradual Payment or Exchange Price £50

Full Particulars and Forms on application.

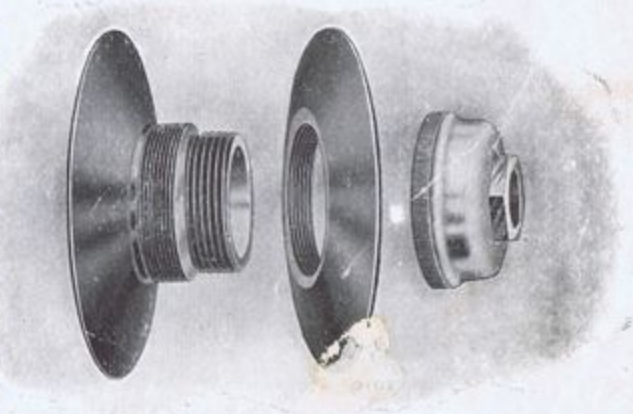
Pedal Model, see pages 12 and 13. Spring Seat Pillar 25/- extra.

ADJUSTABLE PULLEY MODEL.

IN addition to the Variable Gear and Free Engine Model we are manufacturing a similar machine but with an adjustable pulley, as there is a demand for a machine of this description amongst active riders who have no objection to mount in the usual way by the foot plate. The pulley fitted is an adjustable one, giving a variation of gears from 4 to 1 to 5½ to 1. It is a very simple matter to reduce or increase the gear according to the rider's requirements and to suit the particular and varying road conditions met with when touring. An illustration of this pulley and a few directions are given below for altering the gear. This is a very simple and easy matter, and one carried out in a few minutes.

ADJUSTABLE PULLEY.

A pulley of this description is far in advance of a pulley giving only one gear, and instead of a rider when touring having to carry a spare pulley to use in hilly districts, all that has to be done to raise or lower the gear is to adjust the outside flange. From the illustration it will be seen that the pulley is composed of three parts; the body, which screws on to the engine shaft with a right-hand thread, the outer flange, which screws on to the body of the pulley with a left-hand thread, and the locking nut, which screws on with a right-hand thread, and locks the outer flange in position.



To lower or raise the gear, first remove the driving belt from the pulley, loosen the locking nut, and the adjustable flange can then be screwed by the hand, either to the right to lower the gear, or to the left to raise it. When the desired position is obtained, tighten up the locking nut and replace the belt in position. To facilitate shortening or lengthening the belt, when the gear is altered, it is a good plan to fit two belt fasteners in the belt about 6in. apart, which can be used for the highest gear, and then to carry in the tool bag one or two short pieces of spare belt 4in. or 5in. long. When the gear is lowered, one of these pieces can then take the place of the 6in. piece, which will have shortened the belt and made it suitable for the lower gear.

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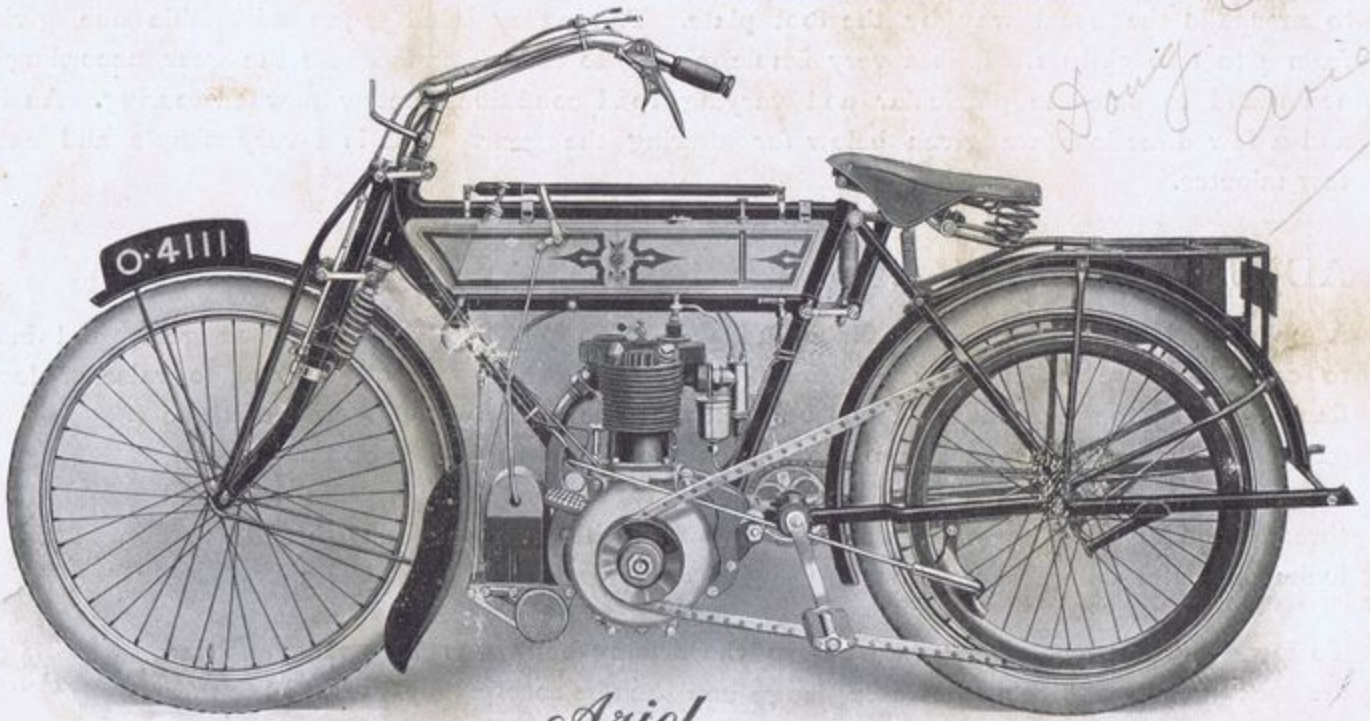
3½-h.p. MOTOR BICYCLE

ADJUSTABLE PULLEY MODEL.

WITH PEDALING GEAR.



Ariel

This Model is fitted with Pedaling Gear and Foot Rests instead of Foot Plates, and an Adjustable Pulley instead of the Variable Gear and Free Engine.

Gradual Payment or Exchange Price £52 15 0.

FULL PARTICULARS AND FORM ON APPLICATION.

Spring Seat Pillar 25/- extra.

Ariel 3½ h.p. MOTOR BICYCLE

WITH PEDALING GEAR.

SPECIFICATION.

ENGINE—3½ h.p., 85×85 m/m, large mechanically operated valves, adjustable tappets, with vertical lift

GEAR—Adjustable pulley.

CARBURETTER—B. and B., specially adapted, very economical.

CONTROL—Handlebar.

IGNITION.—Magneto, high tension, ball bearing and chain driven, with aluminium chain case.

SILENCER—Latest improved pattern, with cut-out; very silent.

TRANSMISSION—⅞in. rubber belt.

FRAME—Low saddle position and long wheel-base, specially designed.

FORKS—Latest pattern spring forks, truly vertical movement.

FOOTRESTS—With rubber pads.

WHEELS—Equal 26in. Very strong.

MUDGUARDS—Large and wide, with mud flap.

TYRES—Liberty, rubber studded motor cycle, 26×2¼in.; other makes to order.

TANK.—Latest improved, complete with oil pump, petrol gauge and petrol injector. petrol capacity, 1½ gallon. Oil, 1 quart.

BRAKES—Foot applied rear belt rim, hand-applied front rim.

SADDLE—Ariel, large and comfortable, with double top and three coil springs.

STAND—Fixed to rear Fork ends and automatically secured with patent spring clip.

CARRIER—Strong tubular, over rear wheel.

TOOL BAG—Complete with leather roll and full set of tools, repair outfit, etc.

NUMBER PLATES—Front and rear.

FINISH—Black enamel, frame coslettised, plated bright parts. Tank aluminium, with colored lines.

REFLEX ROAD LIGHT.

MAGNETO COVER.

Net Cash Price £47 10 0. Gradual Payment or Exchange Price

FULL PARTICULARS AND FORM ON APPLICATION.

Spring Seat Pillar 25/- extra.

VARIABLE GEAR MODEL, see pages 4 to 9. ADJUSTABLE PULLEY MODEL, WITHOUT PEDALS, see pages 10 and 11.

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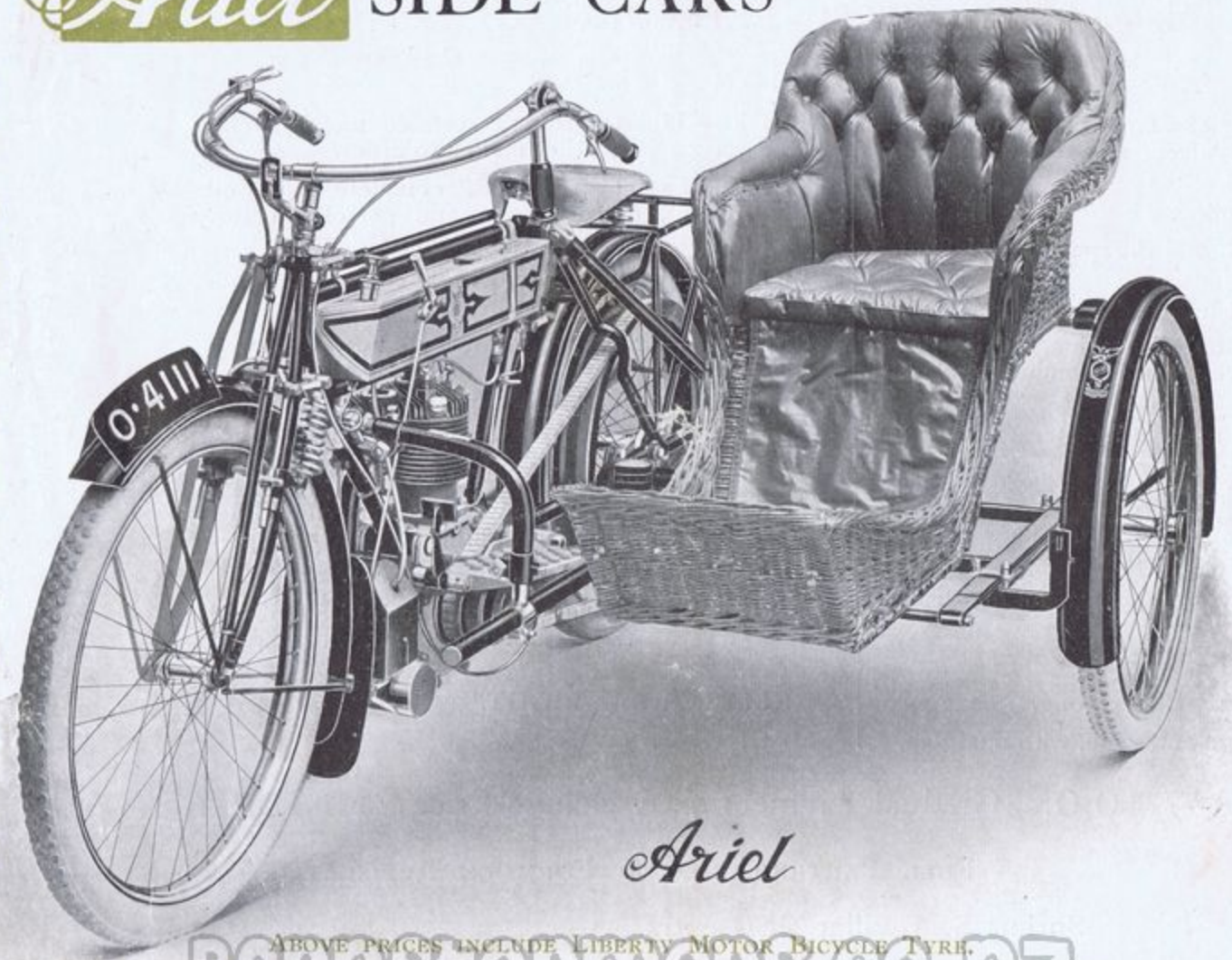
Ariel SIDE CARS

RIGID WHEEL MODEL,
With Wicker Chair, not Upholstered.
£6 10 0

RIGID WHEEL MODEL.
Latest Design.
With Wicker Chair, not Upholstered.
£8 8 0

RIGID WHEEL MODEL.
With Wicker Chair, Upholstered.
(Complete with Apron as illustrated).
£9 9 0

RIGID WHEEL MODEL.
With Cane Chair, Upholstered.
£11 0 0



SPRING WHEEL MODEL.
With Wicker Chair, Upholstered.
£12 12 0

SPRING WHEEL MODEL.
With Cane Chair, Upholstered.
£14 14 0

CASTOR WHEEL MODEL.
With Wicker Chair, Upholstered.
£12 12 0

CASTOR WHEEL MODEL.
With Cane Chair, Upholstered.
£14 14 0

ABOVE PRICES INCLUDE LIBERTY MOTOR BICYCLE TYRE.
Coach Built Bodies, etc., supplied to order. Full particulars on application.

Ariel SIDE CARS.

A FEW years ago Ariel Side-Cars had an exceptionally good reputation, and we were one of the first manufacturers to make a Side-Car suitable for use with a medium powered Motor Bicycle. We have given particular attention to Side-Cars. and shall manufacture several models for the 1911 Season. These will include a Rigid Wheel pattern, a Spring Wheel pattern. and a Castor Wheel pattern. All these will be quite up-to-date in every detail, and will contain a number of improved refinements.

RIGID WHEEL MODEL.

This model can be recommended with every confidence to riders requiring a simple form of Side-Car and one which can be relied on in every way Although not quite so comfortable for the passenger as the Spring Wheel Model. it is preferred by a number of riders owing to its simplicity. The width of this Car when detached from the Motor Bicycle is 36in. wide, but with care it can be passed through a doorway 31in wide. The width overall when attached to an Ariel Motor Bicycle is 52 inches.

It is secured to the Motor Bicycle in three positions, viz. :—to the down tube, the seat pillar bolt, and the chain stay. When once the fitments are on the Motor Bicycle these need not be removed and the Side-Car can then be attached or detached as required in a few minutes.

SPRING WHEEL MODEL.

In addition to the usual Cee Springs on this model there are additional springs on each side of the wheel spindle which absorb the road shocks and make the Side Car most comfortable when being driven over rough roads. The steering of this model is easier than with the rigid one. The system of attaching is identical with the rigid pattern.

The width of the Car when detached is 44in., but it will pass through a doorway 39in. wide. The overall width when attached to an Ariel Motor Bicycle is 60 inches.

CASTOR WHEEL MODEL.

This is an entirely new design in a very improved form. The wheel is placed well to the rear and comes almost parallel with the rear wheel of the Motor Bicycle. If required it can also be supplied with a Spring Wheel at an extra The width of the Car is 38in. and it can be passed through a 33in. doorway. The overall width with an Ariel Motor Bicycle is 54 inches.

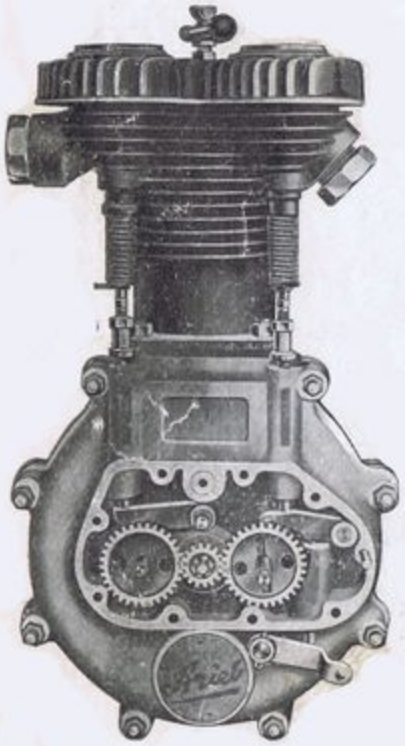
Unless otherwise ordered, all Side Cars are supplied to fit to the left hand side of the Motor Bicycle. If required to fit to the right hand side, it is only necessary to mention this when ordering.

If other details or particulars are required, we shall be pleased to forward same on application.

DETAILS OF 3½ h.p. ENGINE

WITH INSTRUCTIONS FOR TIMING

EVERY care and attention is given in the construction and assembling of Ariel Engines which are manufactured throughout in our own Works. Inspection invited. Each individual part is carefully inspected during manufacture, and when assembled into the complete engine, is given a thorough road test under varying conditions by one of our experts before leaving the works. The engine dimensions are 85 × 85 m/m, it develops great power for its capacity and gives an ample reserve for hill-climbing. The engine is so constructed that every part receives sufficient oil for lubricating purposes. It is most economical in its consumption of fuel and most flexible under all conditions. The valves are accessible for grinding-in when this is necessary and easily removable in case of replacement. The timing gear is very substantial, and all parts are carefully hardened and tempered. The valve tappets are adjustable and in alignment with the valve stems. The silencer and exhaust tube are of ample dimensions to allow the burnt gases a clear exit from the engine, thereby keeping it cool. A cut-out is fitted, which can be operated by the hand or foot whilst the rider is seated in the saddle.



The magneto is chain-driven and fitted in front of the engine on a special bracket which allows of adjustment for the chain. The chain runs in an aluminium case which is oil and dust-proof, and provision is made for it to receive sufficient lubrication from the engine.

TIMING OF THE ENGINE.

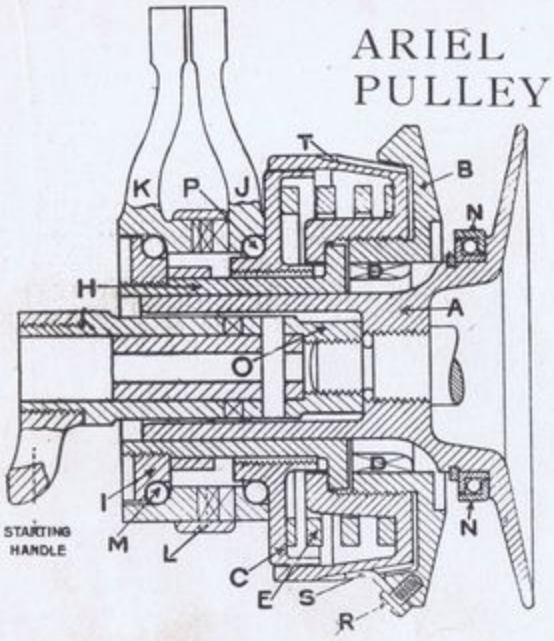
The inlet valve commences to open when the piston is $\frac{1}{8}$in. down the suction stroke, and closes when the piston is $\frac{5}{32}$in. up the compression stroke. The exhaust valve commences to open when the piston is $\frac{3}{8}$in. from the bottom of the firing stroke, and closes when the piston has just turned the top of the exhaust stroke.

The distance between the top of the valve tappets and the end of the inlet and exhaust valve stems should be $\frac{1}{64}$in. This will give the above timing.

The illustration shows the position of the pinion and cam wheels when correctly timed. The inlet cam wheel is marked on one of the teeth with the figure 1; and one of the teeth on the exhaust cam wheel with the figure 2; the central pinion wheel is correspondingly marked, and if these are placed so that the figures come opposite one another, the timing will then be found correct.

PISTON AND FLY WHEELS

ARIEL PATENT VARIABLE GEAR & FREE ENGINE PULLEY WITH ADJUSTABLE FLANGE & BALL BEARINGS



THIS consists of a pulley body A which is screwed on to the engine shaft with a right-hand thread, and locked in position by a lock nut O with a left-hand thread. Mounted on the body of the pulley is the sliding flange B; this is compelled to turn with the pulley body by the keys D (solid with the sliding flange) which fit in keyways and hold the sliding flange in position, allowing only of a sliding movement sideways, which is controlled by the gear lever on the handlebar.

A spring thrust plate C is screwed on to the body of the pulley with a right-hand thread, and in between this and the sliding flange is a coil spring E which is sufficiently strong to resist the tendency of the belt when driving, to open or separate the pulley flanges. The operating sleeve H is capable of sliding along the pulley body, but otherwise is fixed. At the end of the operating sleeve is a ball thrust ring I, and this in conjunction with the ball race P on the spring thrust plate supports the fixed cam ring J and the movable cam ring K. On these two cam rings is placed the bearing ring L, which keeps the cam faces in alignment. Both the cam rings J and K have inclined faces on their inner sides which slide one against the other, and when the movable ring K is operated against the stationary cam ring J, the ball race M together with the ring I is thrust outwards; this movement is conveyed to the sliding flange B by means of the operating sleeve H, the external shoulder of which comes against the internal shoulder of the adjusting ring T.

When the cam ring K is turned as far forward as possible, the pulley flanges are then separated to their fullest extent, which allows the belt to drop down into the bed of the pulley and to run free on the ring N, which is mounted on ball bearings, thereby giving an absolutely free engine.

When the movable cam ring K is released by operating the gear lever on the handlebar, the spring E forces the sliding flange B towards the fixed flange, and when it comes sufficiently close to engage the belt, gives the lowest variation of the gear, viz.:—5½ to 1. As the operating lever is raised, so the pulley automatically closes itself, forcing the belt higher between the flanges until the highest variation of the gear is obtained, viz.:—4 to 1. It will be seen that any intermediate gear between the lowest and highest variations can be obtained simply by placing the control lever on the handlebar in the necessary position. The movement from the gear operating lever is conveyed to the variable pulley by a specially strong cable. The lever automatically locks itself in any desired position, and the operation of same is most simple, being fully explained on page 18.

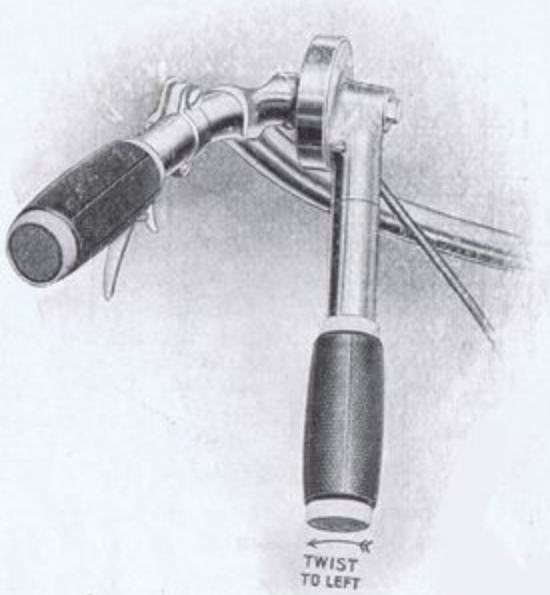
Should it be necessary to reduce the width of the pulley owing to the belt having narrowed, this can be done by removing the belt and closing up the flange B, by placing the operating lever in its highest position. Then release the screw R, remove the locking key S from its slot, and turn the flange adjusting ring T to the right, so that the distance between the pulley flanges is only sufficient to allow the top of the belt, when in the pulley, to be level with the top of the pulley flanges. Then turn the flange adjusting ring T either to the right or the left, until the nearest slot comes opposite the screw R; lock in this position by replacing the locking key S and tightening the screw R.

There is no end-thrust on the engine bearings, all this being self-contained in the pulley itself. The only attention the pulley requires is lubricating from time to time, for which provision is made by a cap in the bearing ring.

VARIABLE GEAR & FREE ENGINE OPERATING LEVER.

THE lever for operating the Variable Gear and Free Engine Pulley is fitted on the left-hand side of the handlebar, and is so constructed that whilst being operated the control of the steering is exactly the same as if the hand was placed on the bar proper.

To obtain a free engine, press down the lever to its lowest position which opens out the pulley, and allows the belt to run on the ball-bearing ring at the bottom. The lever when operated in a downward direction automatically locks itself in any desired position and will remain there until released. When it is required to bring either of the higher variations of gear into operation, the left hand is placed on the operating lever; this is then slightly depressed and twisted to the left or outwards (see illustration), which releases the lever and allows it to be raised to any desired height to give the variation of gear required. When letting in the gear, the lever must be raised SLOWLY until the machine commences to glide forward.

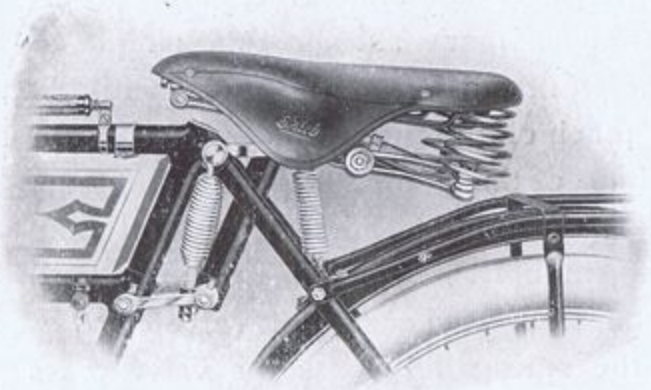


ARIEL (PATENT) DECOMPRESSOR OPERATING LEVER.

COMBINED with the Exhaust Lifter Lever is a smaller operating lever or trigger for manipulating the Ariel Patent Decompressor. A glance at the illustration will show exactly what the construction of this is. To bring the Decompressor into operation the small lever or trigger *a* is pulled upwards with the finger which will release the larger lever *b* and this automatically brings the Decompressor into operation. To place the engine under normal compression again, the larger or exhaust lifter lever is pulled upwards into the position illustrated. To raise the exhaust valve itself, the exhaust lifter lever is pulled further upwards closer to the handlebar grip.

ARIEL PATENT SPRING SEAT PILLAR.

THE portion of the frame of the motor bicycle to which the spring seat pillar is attached has been specially designed so that an ordinary saddle pillar or our Ariel (patent) Spring seat pillar can be used, and we strongly recommend the latter, which we are prepared to fit at an extra charge of 25/-



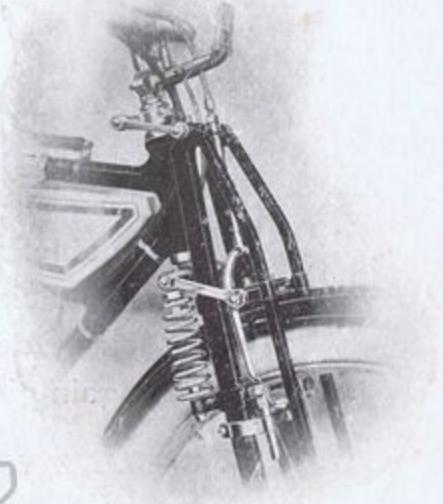
It is an IDEAL SHOCK-ABSORBER, and is ADJUSTABLE TO THE WEIGHT OF THE RIDER. As will be seen from the illustration, an Auxiliary Seat Pillar Tube is suspended at the the rear of the frame seat tube, and connected to it by double rocking levers and two suspension springs. A recoil or buffer spring is fitted at the rear to prevent the seat pillar rebounding too quickly, and the whole arrangement allows of a smooth and easy vertical movement. None of the parts are concealed, and the only attention necessary is a little lubrication, for which provision is made. The seat pillar is adjustable to any reasonable height for tall riders.

THE ARIEL (PATENT) SPRING SEAT PILLAR DOES NOT INCREASE THE HEIGHT OF THE SADDLE.

A large and comfortable Saddle is fitted with three-coil springs and double leather top.

SPRING FORKS.

THESE Spring Forks, in combination with the Ariel Patent Spring Seat Pillar and Rubber Studded Foot-plates practically isolate the rider from vibration and road shocks, and make the machine at all speeds, as comfortable as a motor car.
The Forks have a truly vertical movement, and when the front wheel strikes an obstacle, the springs are compressed and absorb the shock ; directly the obstacle is surmounted, or the depression in the road covered, they resume their normal position. The front wheel is quite rigid in the fork, and as the mudguard and front brake are mounted on the forks, the whole move together, giving an ideal spring fork with perfect suspension.

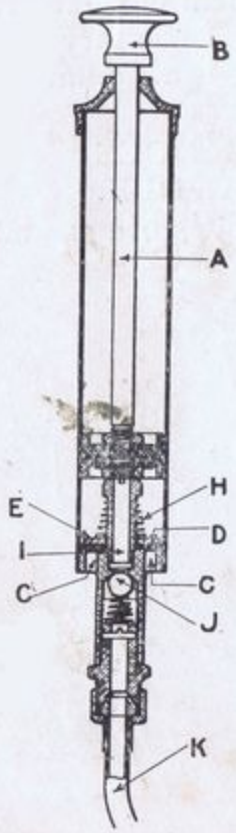


REFLEX ROAD LIGHT.

THE necessity for a rear light on a motor bicycle is very apparent, owing to the large amount of fast motor car traffic on the road at the present time, and one of these rear lights is included in the specification, and fitted to each Ariel Motor Bicycle without extra charge.

OIL PUMP & LUBRICATION

THE satisfactory running of the machine depends to a very large extent on correct and proper lubrication of the engine, and on our motor bicycle this has been made as easy and simple as possible. The oil compartment and pump are situated in the front portion of the tank, with the pump in an inclined position on the left hand side and within easy reach of the rider whilst seated in the saddle. The illustration will fully explain at a glance the simple working of this pump. It is not necessary to twist the pump plunger or open any taps to charge or empty the pump. To fill it with oil from the tank the plunger **A** is drawn upwards by means of the knob **B**. This fills the pump with oil from the tank, which passes through the holes **C**, past the leather washer **D**, and valve plate **E**. When the upward movement of the plunger is stopped the spring **H** closes the valve parts **D** and **E** and automatically closes the pump to the oil tank. To give the engine a charge of oil the plunger rod **A** is pressed down by means of the knob **B**, which forces the oil in the pump through the opening **I**, and then down and past the ball valve **J** into oil pipe **K**, which conveys the oil to the crank case and the engine. Instead of a full charge of oil being given, say every 20 miles, we recommend a half charge about every 10 miles, but this quantity is only approximate and must be decided upon by the rider, who with a little experience will be better able to judge for himself, according to the varying conditions of the weather and roads and the running of his engine. If in doubt at any time it is better to rather over-lubricate the engine than not to give it sufficient oil, as it is a simple matter to clean the top of the piston and cylinder occasionally of burnt deposit. After a long ride drain off the dirty oil from the crank case, and before starting again give the engine one FULL pump charge.



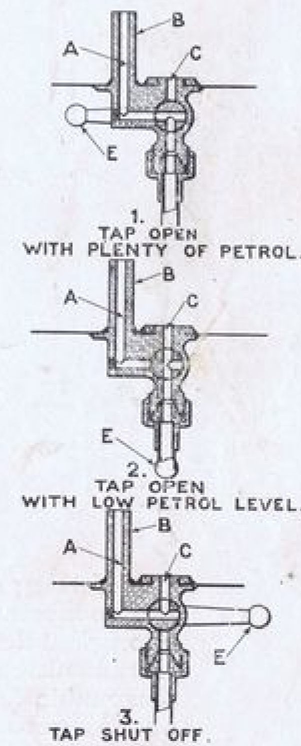
SECTION OF ARIEL OIL PUMP.

ALWAYS USE A WELL-KNOWN AND RELIABLE BRAND OF OIL. WE RECOMMEND FOR OUR ENGINES PRICE'S "MOTORINE C" WHICH GIVES THE BEST ALL-ROUND RESULTS.

OIL & PETROL TANK

SEVERAL important improvements are combined in the construction and details fitted to the Ariel tank. This is substantially stayed inside and secured to the frame by clips on the top tube; the bottom of the tank is securely fixed to the supplementary frame tube by a bracket and bolt. All the tank fitments excepting the oil filler cap, are on the left hand side, thereby enabling the tank to be removed from the frame without any difficulty. An improved pump is fitted in an inclined position (see page 20); the filler caps are larger and are secured in position by spring clips; each cap is anchored to the tank so that it is impossible to lose them. A glass petrol gauge is recessed into the side of the tank, which shows at a glance the amount of petrol contained in the tank. Another improvement is the special three-way petrol tap. This is a specially constructed tap giving the rider warning that his petrol supply is running short. In the illustration Fig. 1 the tap is open to the tank with a good supply of petrol in it. Illustration 2 shows the tap open to the tank after warning has been given that only a small supply of petrol remains viz:—sufficient for about 20 miles. Illustration 3 shows the tap closed.

This special tap is constructed with a bye-pass A, which under normal conditions is left open to the tank with the lever E in the position illustrated in Fig. 1. As the petrol level falls below the top of the tube B the supply is cut off from the carburetter, thereby giving the rider warning that he only has a small amount of petrol remaining in the tank, and that it is advisable at the first opportunity to obtain a refill. If this cannot be obtained immediately, there is sufficient petrol in the tank for about 20 miles further running, and this can be used by turning the lever E into the downward position as illustrated in Fig. 2. To close the tap entirely the lever E is turned into the position shown in Fig. 3.



SECTION OF ARIEL PETROL TAP.

PETROL INJECTOR

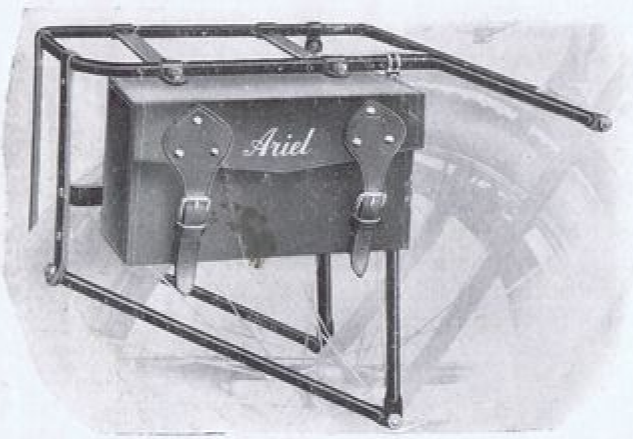
AN improved petrol injector is fitted as illustrated. This is closed when the injector is turned towards the rear of the tank. To open and inject petrol into the cylinder through the compression tap, it is only necessary to swing the pipe into a forward position with the end of the pipe over the compression tap. This then allows the petrol to spot through, and when the compression tap is open it will enter the cylinder. To close the injector after using, and shut off the supply of petrol, swing the pipe to the rear of the tank.

BRAKES.

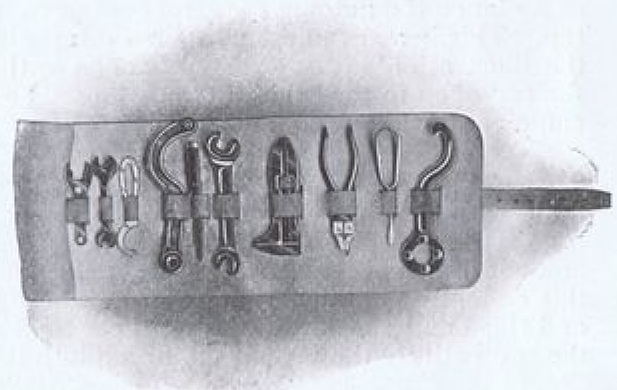
TWO powerful and reliable Brakes are fitted to Ariel Motor Bicycles, either of which will stop the machine in a few yards. The rear brake operates on the belt rim, and is applied by the left foot from the foot-plate ; it is most useful when coasting down long and steep hills, as it leaves both hands free for steering, etc. To adjust, remove foot pedal connection and screw up connecting rod to the right into the brake shoe, then replace foot pedal connection.

The front brake operates on the front wheel rim and is applied by a lever on the right-hand side of the handlebar. See illustration, page 19. This is adjusted by releasing the nut of the telescopic rod and raising the arch until the brake blocks are about $\frac{1}{16}$in. from the rim ; secure by tightening the nut in position again.

CARRIER, TOOL BAG AND TOOLS, Etc.



This Carrier has been specially designed so that the Tool Bag is placed at the side, allowing the whole of the space on the carrier to be used for the purpose for which it is intended. A large and substantial Tool Bag is fitted, containing a leather tool roll with a full kit of tools as illustrated, a large Motor Cycle Repair Outfit, and two oil cans, one for paraffin and the other for lubricating oil for the wheel bearings, etc.



RUBBER STUDDED ALUMINIUM FOOT PLATES.

On referring to the illustrations of our Motor Bicycle, it will be noticed that in place of the usual foot-rests, large, wide and comfortable rubber-studded foot-plates are fitted, which are a vast improvement on the old style of rest. These plates are of original design, made of aluminium and fitted with rubber studs which not only absorb the vibration, which in the usual way is transmitted to the rider's feet, but give a sure, firm and comfortable position ; and as the plates are fairly wide and of reasonable length, they allow of the position of the feet being changed from time to time, which on a long journey is most advantageous. The rear brake can be operated without removing the foot from the plate.

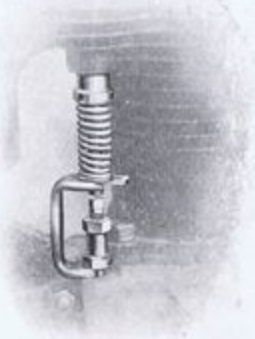
LIBERTY MOTOR CYCLE TYRES

WE have every confidence in recommending Liberty Motor Cycle Tyres. They have been our standard motor cycle tyre for a number of years and have always given thorough satisfaction. They are made in two patterns, viz., Studded and Grooved. The Studded will be our standard tyre for Ariel Motor Cycles. The studded tread gives the tyre a very firm grip of the road and makes it practically non-skidding. A large amount of best Para rubber is used in the construction of Liberty Tyres, this being distributed in correct proportions on the tread and sides. The tread has been specially strengthened, and it will also be noticed that there is a good thickness of rubber at the sides of the cover. The cover is specially toughened to resist wear and liability to puncture. The casing upon which the cover is formed is made of specially strong material, and a proportion of rubber is placed between the different layers which considerably strengthens the tyre and protects the inner casing from wet, which in the ordinary course is liable to enter through cuts in the outer cover and cause the casing to rot.

The Grooved pattern cover is also an excellent non-skid. The ridges at the sides being in a position to immediately arrest any tendency to skid or slip, whilst they do not slow or retard the machine in any way. The prices of Liberty Tyres, Covers and Tubes are given on page 32. If customers require other makes of Tyres fitted to Ariel Motor Cycles these can be supplied to order.

In the 1910 Tourist Trophy Race, Liberty Tyres were fitted to the Ariel Motor Bicycle which was the second fastest make of single cylinder machine to finish. The tyres went through this most severe test without receiving any attention or giving the slightest trouble. On examining the tyres after the race they showed very slight signs of wear and were practically equal to new.

ARIEL COTTER EXTRACTOR.

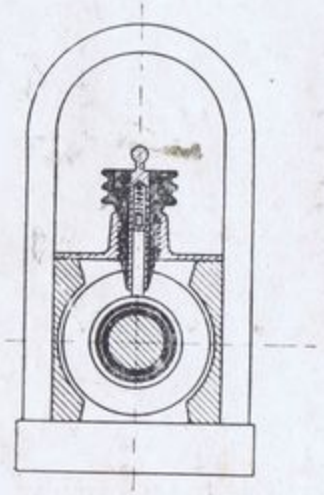


THE illustration on this page shows at a glance what a simple matter it is to remove a valve cotter with this arrangement. The engine is rotated by the pulley until the valve is lifted to its highest point by the valve tappet. The valve spring is then under compression and the extractor is placed in the position illustrated, one end being underneath the valve washer, the other resting on the top of the crank case. The engine is again rotated and as this is done the valve tappet and valve stem drop, the valve washer and spring are held in position by the extractor, and the valve cotter is then pulled out. The cotter extractor also greatly facilitates removing the valve stem. Price 1/- each.

PARTICULARS OF THE MAGNETO.

OUR standard type of Magneto fitted to Ariel 3½ h.p. Motor Bicycles is Simms' All-British S.M.I. type. We have used this Magneto on our Motor Cycles for several years with every satisfaction.

During the period of the Magnetic pull on the armature it is possible to advance or retard the interruption of the primary circuit within certain limits by means of the timing or spark lever, causing the spark to jump the points of the sparkling plug early or late as required, thus controlling the timing of the ignition. The timing lever carrying the steel segment is so arranged that it can be rotated to an angle not exceeding 25° which is equal to a variation of 50° on the engine.



ADJUSTMENT OF MAGNETO, Etc.

To set the Magneto, the following method must be used : Rotate the engine until the piston is at the top of the compression stroke. To exactly ascertain this, rotate the engine in a forward direction until the exhaust valve is closed, then give the pulley one complete turn, which should bring the piston to the top of the compression stroke. To correctly ascertain when the piston is at its highest point, remove the compression tap from the cylinder head and insert a short piece of stout wire, such as a wheel spoke, until the end of the wire rests on the top of the piston. The pulley can then be moved backwards or forwards until the wire indicates that the piston is at its highest point.

IMPORTANT. Take care that the wire does not fall inside the cylinder.

Now remove the dust cover 6, then fully retard the timing lever by moving the lever as far as possible in the direction in which the armature rotates. Then turn the armature in the same direction until the platinum points are just about to break. When the Magneto and engine are in this relation place the chain over the sprockets and tighten up when the timing will be correct.

HOW TO LOCATE FAULTS.

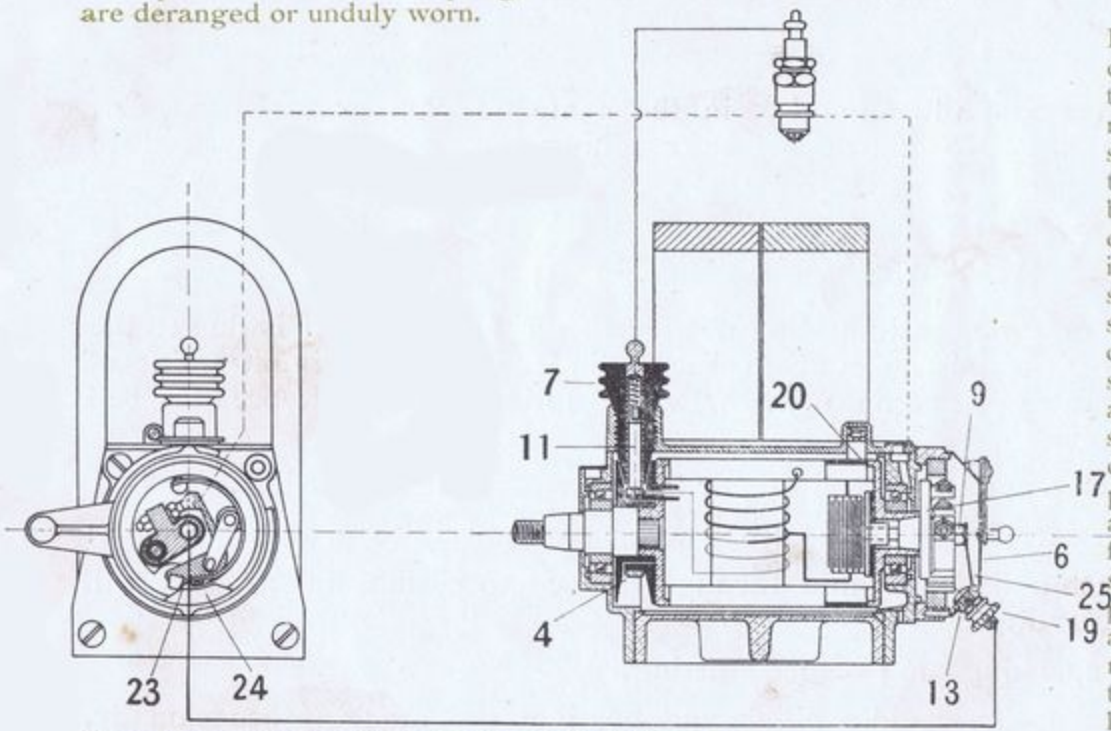
Should any irregularity in the ignition occur, the following method should be adopted to ascertain the reason for the fault. The high tension wire should first be detached from the Magneto, and the Magneto spanner placed on carbon holder 7 so as to leave a distance between the spanner and the Magneto of 1 m/m. Set the timing lever to position of full advance and rotate the Magneto by turning the engine quickly. If a powerful spark passes regularly between the Magneto and the spanner, this is proof that the Magneto is in working order. If this is the case, the fault must be looked for in the high tension wire or sparking plug. The high tension wire should again be attached to the Magneto and the sparking plug tested, and if necessary be replaced by a new one.

The wire should also be tested and care taken that the terminals at the end of the cable do not come in contact with any portion of the Magneto or the Engine.

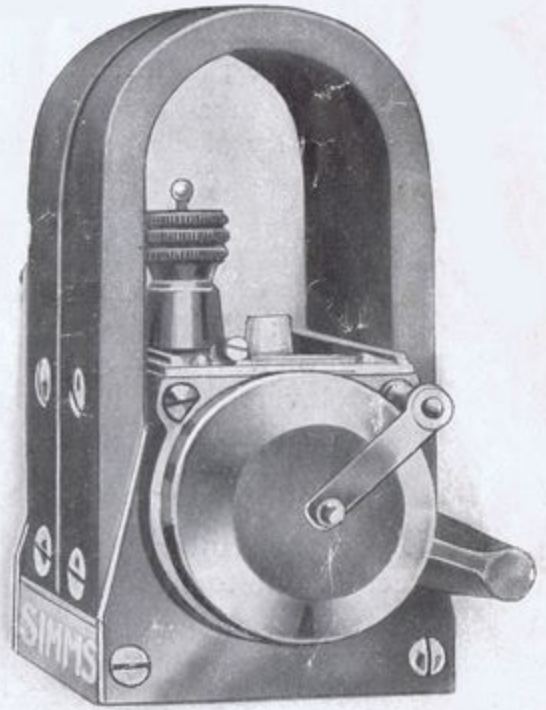
Any interruption of the high tension circuit causes sparking to take place at the safety spark gap. If the ignition ceases altogether, it may possibly be found that the conductor of the switch wire from the Magneto has become permanently in contact with the frame or some other part of the Bicycle, or that the switch itself is at fault, thus unintentionally switching off the Magneto. To test the switch and its connections, remove the wire from the switch terminal on the Magneto.

If the Magneto is at fault, the spring contact cover should be turned aside, and the cover 6 removed for the purpose of discovering whether the fault is at the contact breaker. To decide this the distance between the platinum points when the circuit is broken should first be checked. A distance piece is attached to the spanner supplied with each Magneto, and this should fit exactly the opening between the points. Any inaccuracy of the platinum point adjustment may result in early or late firing, or may even cause the machine to completely misfire.

Such parts as the contact spring, fibre heel of contact lever, etc., should also be examined in order to ascertain if any of these are deranged or unduly worn.



If these are in order, unscrew the screw 9 by means of the spanner, remove the contact breaker disc, and examine the platinum points to see whether their surfaces are clean and smooth. If they are not, they should be well cleaned with petrol to remove any oil or dirt from them. If the surfaces of the platinum points are not flat, they may be evenly trimmed with a little fine file.



Screw 9 should should always be well tightened up.

CARE AND MAINTENANCE.

The armature rotates on ball bearings, which should be lubricated once a month by injecting a few drops of oil into the chambers marked "Oil." All the rest of the parts of the apparatus require no lubrication, especially the contact breaker, which is designed to work without oil. It is therefore necessary to prevent any oil from getting on to the contact breaker and its platinum contacts.

A FEW GENERAL SUGGESTIONS

TO RIDERS OF ARIEL MOTOR BICYCLES.

PROPER and sufficient lubrication of the engine and the machine are of the utmost importance. Overheating, carbon deposit, fouled valves, smoky exhaust, loss of compression, broken piston rings, absence of power, etc., are usually the result of improper lubrication and unsuitable lubricating oil.

HILL-CLIMBING.

Usually the advance lever, when climbing a steep hill, should be in the same position as for speed, *i.e.*, as far advanced as possible. Should the engine start to knock before reaching the top, gradually reduce the quantity of air before retarding the spark.

OVERHEATING OF ENGINE.

After the machine has been in use for some time, and the engine overheats, this probably is due to the following:—a deposit of carbon on the top of the piston and in the cylinder head, platinum point of magneto worn or dirty, fibre block or bell crank of magneto worn, weak spring of contact breaker bell crank lever, or faulty plug.

Always drive with the gas lever closed as much as possible, and the air lever open as far as possible.

Grind in spare valves to their seats, and when carrying in the tool bag wrap up securely to prevent damage.

In the winter, after returning from a ride inject a little paraffin through the compression tap, as this will keep the piston free in the cylinder and facilitate starting.

When the machine is wet, carefully wipe the sparking plug before starting.

Oil the hubs, wearing parts of the spring forks, spring saddle pillar, and head of the machine occasionally.

If any nuts are hard to remove at any time, a little paraffin will prove beneficial.

Should any difficulty present itself at any time, ask the advice of an expert or write to us. Do not experiment with the machine. It was severely tested on the road by one of our experts, and carefully tuned up before leaving our works.

A FEW CAUSES OF FAILURE AND THEIR REMEDIES.

ENGINE RUNNING WELL BUT NOT PROPELLING MACHINE.

Probably due to stretch in the belt. Shorten, by removing an inch, and see that the new fastener hole is a full half-inch from the end, and in the centre.

ENGINE WILL NOT START AFTER A STOP.

See petrol is turned on, and examine sparking plug to see if sooted; if so, clean or replace with new one. If piston gummed up, inject a little paraffin or petrol.

ENGINE STOPS SUDDENLY.

Examine sparking plug, and if cracked or damaged replace with a new one. If badly sooted, clean thoroughly with petrol, and adjust points so that the finger nail just passes.

If petrol used up and the engine is still warm, and a supply of petrol cannot be obtained immediately, the engine will run on paraffin until petrol can be obtained.

Try and flood the carburettor. If unable to do this, the petrol pipe is probably choked up with foreign matter. Take to pieces, and clean by passing a piece of copper wire through it.

Wheel the machine forward without raising the exhaust valve: if it moves easily, and there is a hissing noise from the engine, the valve stem or spring is probably broken. This will then have to be replaced with a spare. See that all broken pieces are carefully removed. Spare valves and springs should always be carried, particularly the exhaust valve.

If the involuntary stop is not due to either of the above, place the stand in position and slowly rotate the engine, noticing whether both valves are lifted regularly. If either of these should remain open, the stem is probably jammed in the guide. Remove the cotter and spring, and run a little paraffin down the stem of the valve, giving it a slight tap on the head which will generally loosen it sufficiently to enable it to be removed. Clean the valve stem before replacing with fine emery cloth.

ENGINE REFUSES TO TAKE AIR, AND LOSS OF POWER.

This is probably due to the petrol pipe having become choked up with some foreign matter, and can easily be tested by flooding the carburetter—if petrol flows freely this pipe is then clear. This may also be due to grit or dirt in the carburetter jet, although very unusual. Remove the carburetter chamber, and pass a fine needle or thin wire through the hole in the jet.

If the engine runs well for a short time, and then suddenly stops or runs slowly, this is probably due to water or foreign matter in the carburetter; remove the carburetter float and clean the float chamber.

When the engine is losing compression after having been run some considerable distance, the valves should be carefully ground in; a little lubricating oil, and a small amount of very fine emery or powdered pumice can be used, taking care that none is left in the engine. On replacing the valve see that the cap in the cylinder head is well secured and made gas-tight.

ENGINE MISFIRING.

Examine sparking plug, and replace if necessary or thoroughly clean. If engine still mis-fires, remove the plug and place this on the top of the cylinder, so that the body of the plug only touches the cylinder. Raise the exhaust valve by the exhaust lifter lever, and sharply rotate the engine, and if a spark is not obtained at every other revolution, fit a new plug, and if this is not successful, test magneto. See pages 24 and 25.

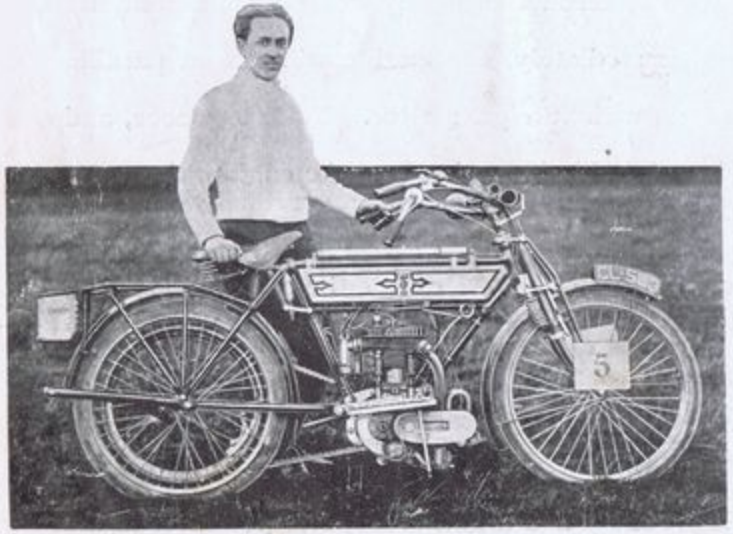
COPIES OF A FEW UNSOLICITED TESTIMONIALS RECENTLY RECEIVED REGARDING

Ariel 3½-h.p. MOTOR BICYCLES

WITH A FEW ARIEL RIDERS AND SOME OF THEIR SUCCESSES DURING 1910.

MR. F. MANNING, of the NORWICH MERCURY CO., LTD., Norwich, writes—

"Having covered 15,000 miles on business for our office, I take it that you will be interested to know that I have covered that distance without engine trouble of any description. It is essential in my calling of Press Photographer to be certain of getting out and back to time. Our 3½-h.p. Ariel has yet to fail me for the first time. Trusting that you will have the business with your next year's machine that so good a one deserves. I might mention that my front tyre is the Liberty Tyre you supplied on the machine, having been in use the whole time."



MR. F. C. NORTH, NORWICH.

LONDON TO EDINBORO' - - - - GOLD MEDAL
LONDON TO EDINBORO' & BACK - GOLD MEDAL
YARMOUTH & DISTRICT M.C.C. Hill Climb (Variable Gear Class) - - - - FASTEST TIME
NORWICH M.C.C. Reliability Trial - - NON-STOP RUN
GREAT YARMOUTH & DISTRICT M.C.C. Reliability Trial - - - - - SILVER CUP
MOTOR CYCLE CLUB 100 mls. Team Trial NON-STOP RUN

MR. H. B. DICKER, Darlington, writes—

"I purchased one of your 3½-h.p. Ariel Motor Bicycles four months ago from your agent, Mr. Smith of this town, and I am entirely satisfied with it. You will see from this week's "Motor Cycle" that Mr. Smith's and my machine were the winners in our Club Hill Climb. There is nothing to touch them for speed around here, and, although I have been a motorist for 6 years, I can safely say I have only realised the full delights of the sport since acquiring your machine. I might say that I do most of my running with a side-car attached, and I am not afraid of tackling the hilliest of roads around here with self and passenger, combined weight 24 st. Up to the present I have done 2,000 miles and have not had to tighten a nut so far, and I think that speaks well for the absence of vibration and also for the reliability of the machine.

MR. J. SLAUGHTER, BIRMINGHAM.

Making light work of Glendoe Hill in the Scottish Six Days' Trial.

LONDON TO EDINBORO' - - - GOLD MEDAL
A.C.U. Quarterly Trials - - - - - NON-STOP RUN
BIRMINGHAM M.C.C. Hill Climb - - GOLD MEDAL & FASTEST TIME
SCOTTISH SIX DAYS' TRIAL - - SILVER MEDAL
MOTOR CYCLE CLUB 100 miles Team Trial NON-STOP RUN
TOURIST TROPHY RACE - SECOND FASTEST MAKE OF SINGLE CYLINDER

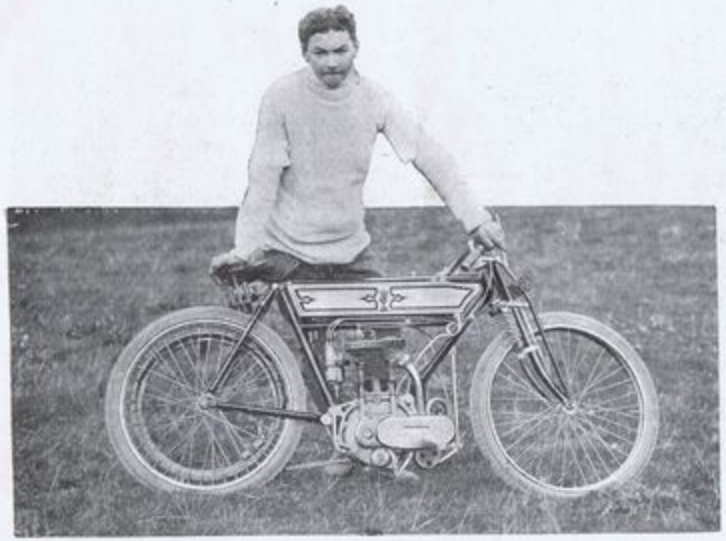
THE ARIEL 3½-h.p. MOTOR BICYCLE EXHIBITED AT THE BERGEN EXHIBITION WAS AWARDED A GOLD MEDAL.

Mr G. KNOWLES, Blackheath, writes—

"I have not written to you previously as I wanted to give your machine a thorough test in all weathers. I have nothing but praise for it; it has not once failed me although I do long distances. In my business I average about 400 miles per week; I have done this for six months on the same machine. I have ridden for the last three months without a spanner of any kind, such is my confidence in it. It is an admirable hill climber, starts and also picks up very readily; it is very economical running. I may say that lately I have attached a Side-Car with which I can face most of the hills in my district. You can make what use you like of this letter."

Mr. J. W. PARKES, Hales Owen, writes:—

"I may add that I have never been on a better machine in my life. I have done nearly 5,000 miles on it since I have had it, and it has not cost me a penny in repairs, only having the engine cleaned once. I went on my holidays on it up through York and round Scotland and back again, through the Lake District, which as you know, is a severe trial for a Motor Cycle."



Mr. C. B. DUBERLY, NORWICH.

LONDON TO EDINBORO' - - - GOLD MEDAL.
LONDON TO EDINBORO' & BACK - GOLD MEDAL.
YARMOUTH AND DISTRICT M.C.C.,
Hill Climb Fixed Pulley Class - - FASTEST TIME.
NORWICH M.C.C. Reliability Trial - - NON-STOP RUN.
MOTOR CYCLE CLUB 100 Miles Team Trial NON-STOP RUN.

Mr. S. BUTLER, Hook, Winchfield, writes:—

"You will, I know, be pleased to hear the Ariel goes beautifully. I do not know any trouble. I run a few yards, hop on, and as I go over, let the exhaust go and she slips off sweetly. The variable gear and adjustable ditto are excellent. I would not be without either. There are some very steep gradients on bad lanes, with ugly corners, and little chance to see far ahead; the machine tackles them all, even after having to stop on a hill for some waggons, etc., and gets away again. There is one thing I like much, her almost silent running.
I am glad I stuck to the Ariel, and feel sorry for those that do not possess Ariel Motor Cycles."

Mr. S. C. PERRYMAN, BIRMINGHAM.

LONDON TO EDINBORO' - - - GOLD MEDAL.
JARROTT CUP TRIALS — London to Lands End and back - - - - GOLD MEDAL.
A.C.U. Quarterly Trials - - - - NON-STOP RUN.
MOTOR CYCLE CLUB 100 Miles Team Trial NON-STOP RUN.

THE ARIEL 3½-h.p. MOTOR BICYCLE EXHIBITED AT THE BERGEN EXHIBITION WAS AWARDED A GOLD MEDAL.

Mr. ROBSON CROSIER, Newcastle-on-Tyne, writes:—

"I have great pleasure in stating that in the Reliability Run held by the Newcastle and District M.C., July 31st and August 1st, of 450 miles to Stranraer and back, I was successful in winning an A.-C.U. Special Gold Medal. The machine ran splendidly throughout, and in fact, with the exception of filling up with petrol, etc., I had a non-stop run, as I never touched the machine in any way, and the Liberty Studded Tyres with which it was fitted, carried me through without any punctures and without ever using the inflator. I consider it a remarkable performance, and I noted particularly that the machine was extremely steady on greasy roads. I had no suspicion of side-slips. Some of the competitors complained very much of being unable to drive their machines at any speed in consequence of the greasy condition of the roads. The machine is extremely fast, and would have been of greater advantage had I had to make up time at any part of the course, but in consequence of not having a stop this was unnecessary to be done. There was also a competition run in conjunction with this by the North-Eastern Automobile Association, which is open to all Motor Cyclists in the North-Eastern District. I was also successful in winning a Silver Medal in this competition."

Mr. ROBSON CROSIER, NEWCASTLE-ON-TYNE.

NEWCASTLE & DISTRICT M.C.C., Edinboro' and back All Night Run—GOLD MEDAL.

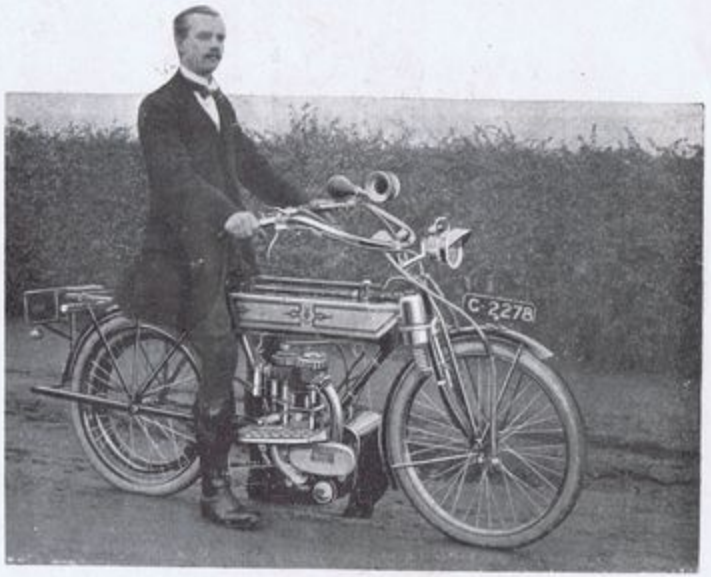
450 MILES STRANRAER & BACK Reliability Trial—SPECIAL A.-C.U. GOLD MEDAL.

Mr. G. W. ORR, Crosshill, Glasgow, writes:—

"The Ariel Motor Cycle which I purchased two months ago has given me great satisfaction. As for the reliability, I have driven my Ariel over 1,000 miles and have never had to make a single adjustment. It is a most comfortable motor to ride; the variable gear and the free engine is a great success. On Saturday, 2nd July, in the Glasgow Motor C.C. Reliability Trial, I was successful in gaining a Gold Medal, having lost no marks in adverse weather. I consider the Ariel 3½ an ideal mount. As for flexibility, speed and hill climbing I cannot say too much in her favour. Wishing you every success."

Mr. G. W. ORR, Crosshill, Glasgow, also writes:—

"On Saturday, 20th August, I was successful in gaining another Gold Medal with my 3½ h.p. Ariel 1910 Motor Cycle. The Glasgow Motor Cycle Club held their annual Petrol Consumption Trial. I travelled the longest distance with the petrol allowance. My allowance was 1·107 pints of petrol, and with this I travelled 23½ miles. I think this is a record for a 3½ h.p. motor. My gross weight was 3cwt. 1qr."



Mr. G. W. ORR, GLASGOW.

GLAGOW M.C.C. 12 Hours' Reliability Trial—GOLD MEDAL.

Do. do. Petrol Consumption Trial (169 miles per gallon)—GOLD MEDAL.

Do. do. Flexible Hill Climb—SECOND.

Do. do. Hill Climb (Single Cylinder Class)—SECOND.

THE ARIEL 3½-h.p. MOTOR BICYCLE EXHIBITED AT THE BERGEN EXHIBITION WAS AWARDED A GOLD MEDAL.

Mr. A. DOWNIE, Edinburgh, writes:—

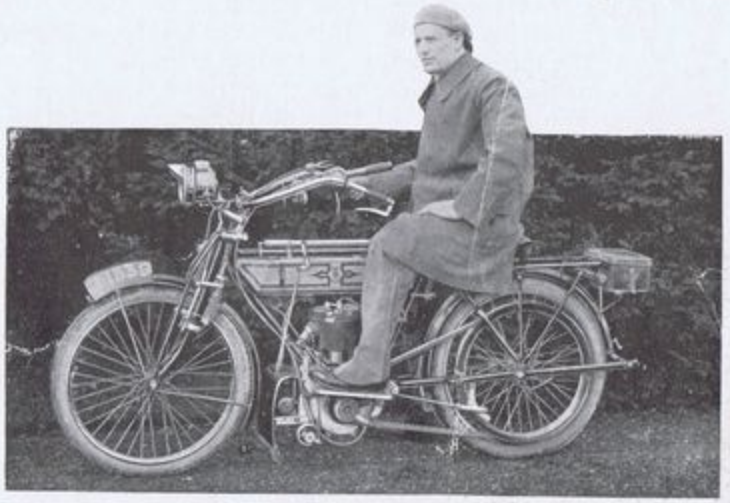
"Mr. Downie, Sen. and Mr. Downie, Jun., had a fine run to Hawick last week on an Ariel 3½-h.p. and Side-Car. They are simply amazed at the power of this little engine. The rider and passenger's combined weight was twenty-four stones and also a heavy "Rigid" Side-Car. The journey, fully 50 miles, took only 2½ hours. It was up-hill nearly all the way. This machine went through this and last season's Scottish Trials."

Mr. ANDREW DOWNIE, Jun., EDINBORO'

Rounding one of the hair-pin bends on Berriedale Hill in the Scottish Six Days' Trial.

SCOTTISH SIX DAYS' TRIAL (1909) - SILVER MEDAL.
Do. do. (1910) - - - do. do.

The most severe Motor Cycle Trials ever held.



Mr. C. W. SMITH, DARLINGTON

BISHOP AUCKLAND, DARLINGTON AND DISTRICT M.C.C. Hill Climb
Open Class - - - - - - - FASTEST TIME.
Ditto - - - - - - - - - FIRST.
Single-Cylinder Class - - - - - FIRST.
DURHAM & DISTRICT M.C. Hill Climb SECOND.

Mr. T. H. INGRAM, Vancouver, British Columbia, writes:—

"...ing now my Motor Cycle, I feel that I should like to send you my opinion of the wheel and its adaptability to the requirements of this country. I ga... the machine a solid test on extremely bad roads immediately on receiving same. Since then have been riding every day all around the city, among street cars and traffic, and also had it out to a track near here and gave it a test at speed work. I can assure you that there is no wheel yet on this market that can in any way compare with it. I find that I can run her so slowly that it is with difficulty I can steer it. Think I have had speed go below 4 miles per hour, and so silent is the machine, that I find the least noise of traffic entirely drowns it. I can handle her on the street crossings without any trouble, never leaving the saddle, although I may be often blocked, even on an up grade. On the track I was very pleased with the machine. I find it almost impossible to open her wide at the end; however, I maintained a steady speed of 45 miles per hour, and the machine ran as smoothly and steadily as a clock. So far as the general construction of the wheel goes and details of workmanship, there is nothing here that can in any way compare with it."

THE ARIEL 3½-h.p. MOTOR BICYCLE EXHIBITED AT THE BERGEN EXHIBITION WAS AWARDED A GOLD MEDAL

SPARE PARTS

FOR ARIEL 3½ h.p. MOTOR BICYCLES.

WHEN ordering spare or replacement parts, it is advisable to send the old ones as patterns, but if this cannot be done, give the number of the Motor Cycle, which is stamped on the engine bracket at the bottom of the seat tube, and also the engine number, which is stamped on the top of the left-hand side of the crank case. A letter should be posted at the same time that the parts are sent, giving full instructions.

We recommend the following spares being carried: Sparking Plug, Exhaust Valve complete, short piece of Belt, Belt Fastener, Belt Punch, Contact Breaker complete with Fastening Screw, Magneto Carbon Brush and Holder, Carbon with Mounting and Spring. A Magneto Spanner is included in the Tool Roll of each machine.

ENGINE PARTS.

	s.	d.
Belt, ⅞in.	13	6
Cylinder Valve Caps ... ... each	2	6
Connecting Rod, complete with Bushes ...	11	0
Connecting Rod Bush, large	2	6
,, ,, ,, small	1	9
Crank Case Bushes ... ... per pair	7	6
Crank Shaft, pulley side	6	0
Crank Shaft, gear side	5	9
Crank Pin...	5	0
Crank Pin Security Pins, with Cotter, each	1	6
Crank Case Bolts ... ... ,,	0	4
Crank Case Nuts ... ... ,,	0	2
Compression Tap ... ... ,,	1	9
Cotter Extractor ... ... ,,	1	0
Exhaust Valve, complete with Spring, Cap and Cotter	5	6
Exhaust Cam Shaft	3	9
Gudgeon Pin	3	0
Gudgeon Pin Security Ring	2	0

	s.	d.
Inlet Valve, complete with Spring, Cap and Cotter	5	6
Inlet or Exhaust Valve Spring ... each	0	3
,, ,, Cotter ... ... ,,	0	6
,, ,, Adjustable Tappet... ,,	4	0
,, ,, Lifter Lever... ... ,,	7	6
,, ,, Cam and Pinion ... ,,	7	9
,, ,, Guides ... ... ,,	1	9
,, Cam Shaft	2	0
Piston, complete with Rings and Pin ...	28	6
Piston only	15	0
Piston Rings ... ... each	2	0
Sparking Plug	3	6
Belt Fastener	1	0
Belt Punch	1	3
Contact Breaker complete, and Fastening Screw	18	3
Magneto Carbon Brush and Holder... ...	2	6
Carbon, with Mounting and Spring	0	6

TYRES.

LIBERTY MOTOR TYRES ...	26×2½in.	beaded edge,	per pair	£5	0	0	studded;	£4	13	6 grooved
,, ,, COVERS ...	26×2½in.	,,	each	£1	17	3	,,	£1	14	0 ,,
,, ,, INNER-TUBES	26×2½in.	,,	,,	£0	12	9	,,	£0	12	9