



1912

Telegrams and Cables :
"MATCHLESS, WOOLWICH," A B C Code, 5th Edition, and Private Code.

Telephone :
232 WOOLWICH.

"MATCHLESS"
The World's Best
MOTOR CYCLES
1912.

H. COLLIER & SONS, LTD.,
Motor Manufacturers and Engineers.

Registered Offices and Showrooms :

44, Plumstead Road, PLUMSTEAD, LONDON, S.E., England.

Nearest Station : WOOLWICH ARSENAL, S.E. & C. Ry.

New Works : BURRAGE GROVE, PLUMSTEAD.

Introduction.

IN introducing our Catalogue for 1912, we beg to thank our many clients for past favours.

Owing to the enormous demand for the justly world-famous "Matchless" machines, we were, last year, compelled to build an entirely new factory. This has been equipped with the most modern and up-to-date plant for turning out the highest class work. Our policy has always been to turn out absolutely the finest machine possible, and to this end the quality of material or class or workmanship is never sacrificed.

Installed in the main works, but as an entirely separate department, is a completely equipped repair shop. Here repairs to any make of machine can be satisfactorily dealt with.

All "Matchless" machines are designed and built under the direct supervision of Messrs. H. A. Collier and C. R. Collier, admittedly two of the finest riders the world has ever seen, and whose experience, both on the road and track, is unparalleled. We are perfectly convinced that track racing is the most severe test to which a Motor Cycle can be subjected. If there is a weakness or a fault in a machine it is practically certain to be shown up in a long track ride "all-out"; whereas it might easily pass unnoticed if the machine was merely run on the road where the same speed could never be attained. When a machine is run "all out" on a track, it means that every part is strained to the utmost limit, and if there is a fault in the design it will surely show. At the same time "Matchless" Motors are being tested every day all over the world, on some of the worst roads in our colonies, as well as the fastest tracks, and everywhere we get the same gratifying result. "Matchless" is first. This year we scored a notable triumph when Mr. Tassel took his 8 h.p. *Matchless and Sidecar* through the six days 1,000 miles trial *without the loss of a single mark*. This feat has never before been

Introduction—continued.

accomplished, and it speaks volumes for the machine that did it. Mr. Tassel is a private owner whose machine had run several thousand miles in all weathers prior to being entered for the trial. Mr. Tassel may well be proud of the Gold Medal he received, and we are equally proud of the machine that carried him to victory.

This, however, is not the only instance of "Matchless" prowess on the road. Every post brings letters from all parts of the world from pleased owners who have entered various competitions and come through with colours flying. A few testimonials are printed at the end. A glance through the Catalogue will show the large number of models we list, from the light weight to the 8 h.p. Special Passenger Model.

In no case has the strength of our lightweight machines been sacrificed to weight, and clients purchasing one of these machines will find that every part has been considered strictly in accordance with the work it has to do. In this manner, we have produced a machine that is every bit as reliable as our larger models, and purchasers will not find they have the annoyance and expense of repairing mudguards, stays, and the host of minor details that are so often found on many machines cut to a point that renders them quite inefficient for the work they have to do, in order to save a few ounces of weight.

In conclusion, we beg to emphasize once more that in selecting the component parts of our machines our first consideration is to obtain the best possible article or class of material for the work it has to do. We are, at all times, only too pleased to give our advice and help to an enquirer in order that he may obtain the exact machine to suit his particular requirements.

H. Collier & Sons, Ltd.

GUARANTEE.

WE give the following guarantee with our Motor Cycles instead of the guarantee implied by statute or otherwise as to the quality or fitness of such machines for the purpose of motor 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 the damages for which we make ourselves responsible under this guarantee are limited to the 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 derangement by neglect or misuse, this guarantee does not apply to defects caused by wear and tear, misuse, or neglect.

Any motor cycle sent to us to be plated, enamelled, or repaired, will be repaired upon the same conditions as if it were a new motor cycle, *i.e.*, we guarantee that all precautions which are usual and reasonable have been taken by us to secure excellence of material and workmanship, such guarantee to extend and be in force for three months only from the time such work shall have been executed, and this guarantee is in lieu and in exclusion of any common law or statute warranty, and the damages recoverable are limited to the cost of any further work which may be necessary to amend and make good the work found to be defective.

CONDITIONS OF GUARANTEE.

If a defective part should be found in our Motor Cycles, it must be sent to us, 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 senders; and this guarantee, or 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, chains, lamps, gear cases, bells, etc., or of any component part supplied to the order of the purchaser differing from our standard specification supplied with our Motor Cycles 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.

HINTS ON THE CARE AND MANAGEMENT OF "MATCHLESS" MOTORS.

CARE.—Keep your engine and machine clean. A good motor cycle is worth a little attention.

EXAMINATION.—It is advisable to examine tyres, brakes, valve lifter, nuts, bolts, and screws carefully before starting for a ride.

This may save stopping for adjustments *en route*.

DRIVING.—Always start with spark well advanced, throttle one-third open, air closed. Regulate speed as much as possible with throttle, and not with spark. On steep gradients retard spark as engine speed decreases.

Bear in mind that on single-speed machines it is advisable to approach such gradients at a fair speed.

STOPPAGES.—In the event of a mechanical stop, look to sparking plug first. This may easily be tested by pedalling engine round with base of plug resting on cylinder head.

If fault is not found in plugs, remove cap from float chamber, when any stoppage in petrol supply will be apparent.

EFFICIENCY.—To obtain the maximum efficiency and life of an engine, it is absolutely essential always to lubricate regularly and keep cylinders as free from carbon deposit as possible.

Cylinders and pistons should be thoroughly cleaned every 1,500 to 2,000 miles.

When replacing valves after grinding-in, care should be taken carefully to remove all traces of grinding compound from seatings and stem of valve, also see that valve guides are quite clean and free from corrosion.

If a valve shows signs of being burnt near the head, fit a new one.

Do not attempt speed with a new machine. It is advisable to drive engine carefully for at least 500 miles before driving all out for any length of time.

Do not prime engine with either petrol or paraffin except when absolutely necessary.

LUBRICATION.—Lubrication is rendered very easy with the 1912 force sight feed combined lubricator, the flow of oil being regulated by the adjustment of needle valve fitted into tap.

Particular care should be taken in selecting the best lubricating oil obtainable.

Do not forget that the hubs, pedals, steering head, fork joints, and other working parts of machine require occasional lubrication.

This is very frequently neglected, with disastrous results.

BELTS.—Keep rubber belts free from all traces of oil and grease.

Leather belts should be rubbed dry after a ride in wet weather, and should always be kept well dressed with crude castor oil.

TWO-SPEED GEARS.—Do not, under any circumstances, allow clutches to slip unnecessarily; raise exhaust lifter whilst changing from low to high gear.

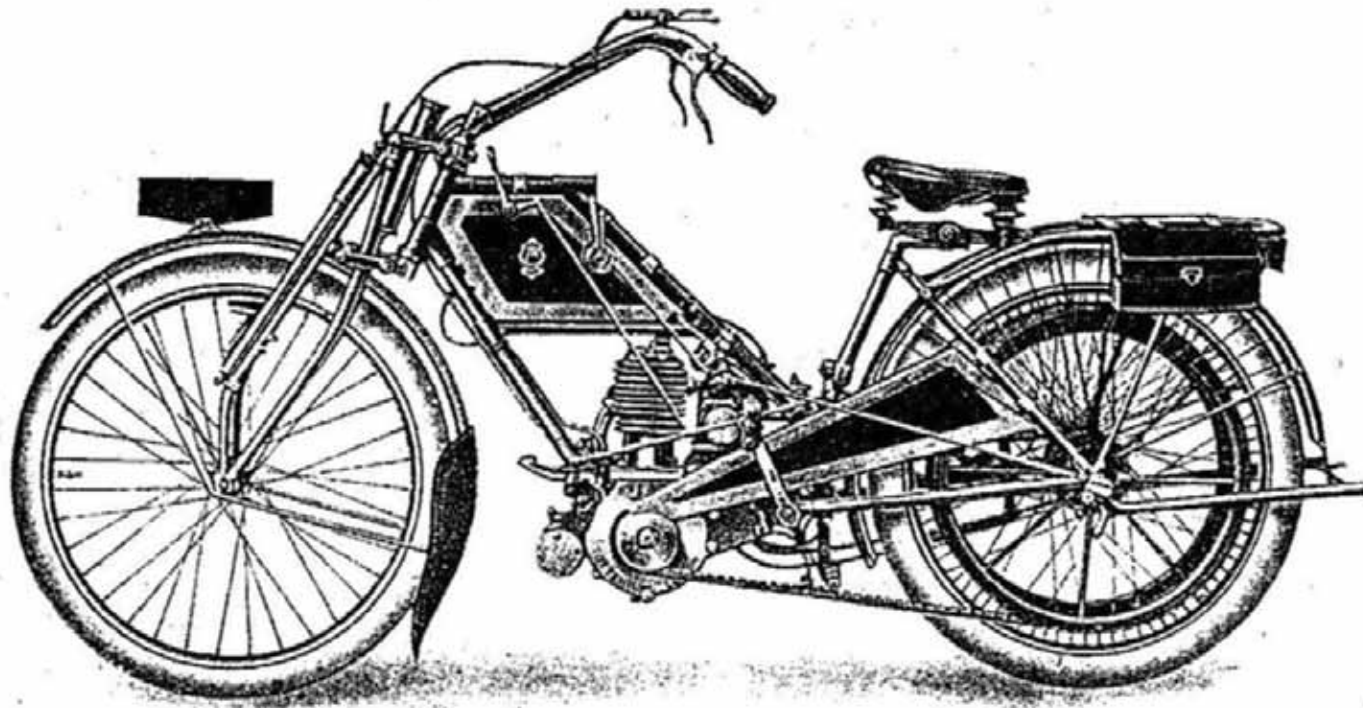
Change from low speed to high smartly to prevent engine racing in free position. Keep gear well lubricated, and fill hub shell with grease periodically.

Bear in mind it is better to climb steep gradients on low gear easily than cause engine to labour on high gear.

REPAIRS.—Do not ignore signs of wear, such as knocking on hills, etc. Remember that early attention to any such signs means longer life to your motor.

Be careful of the unknown "motor expert." Either trust your experienced Agent or go direct to the makers, whose long experience is a guarantee of efficient and intelligent workmanship (see page 25.)

The Perfect Motor Cycle for Ladies.



MODEL No. 1. 2½ h.p. LADY'S.

Fitted with three-speed gear and free engine

SPECIFICATION

ENGINE.— $2\frac{1}{2}$ h.p., 70 x 76, M.O.I.V.

CARBURETTER.—Latest type semi-automatic multiple jet.

IGNITION.—Special light Bosch magneto.

FRAME.—New type open frame, with girder spring forks, giving low riding position.

TYRES.—Standard 26 x 2 in. Hutchinson non-skid. Other tyres according to cost.

MUDGUARDS.— $3\frac{1}{2}$ in. wide, fixed in a very rigid manner.

SILENCER.—“MATCHLESS,” specially designed to suit this engine, with cut-out.

BELT.— $\frac{3}{4}$ in. Shamrock Gloria.

PULLEY.—“MATCHLESS,” adjustable.

BRAKES.—Front rim brake, hand-applied, and powerful driving rim brake operated by pedal.

SADDLE.—Middlemore's Rideasy, or to order.

CONTROL.—Carburetter, by thumb levers on handle-bar. Ignition, by ratchet lever on side of tank, and valve lifter.

TANK.—The tank fits in a specially designed frame, and contains one gallon of petrol and one quart of oil. The oil tank is fitted with semi-automatic forced sight feed lubricator.

FINISH.—Enamelled grey, and fine-lined gold and green.

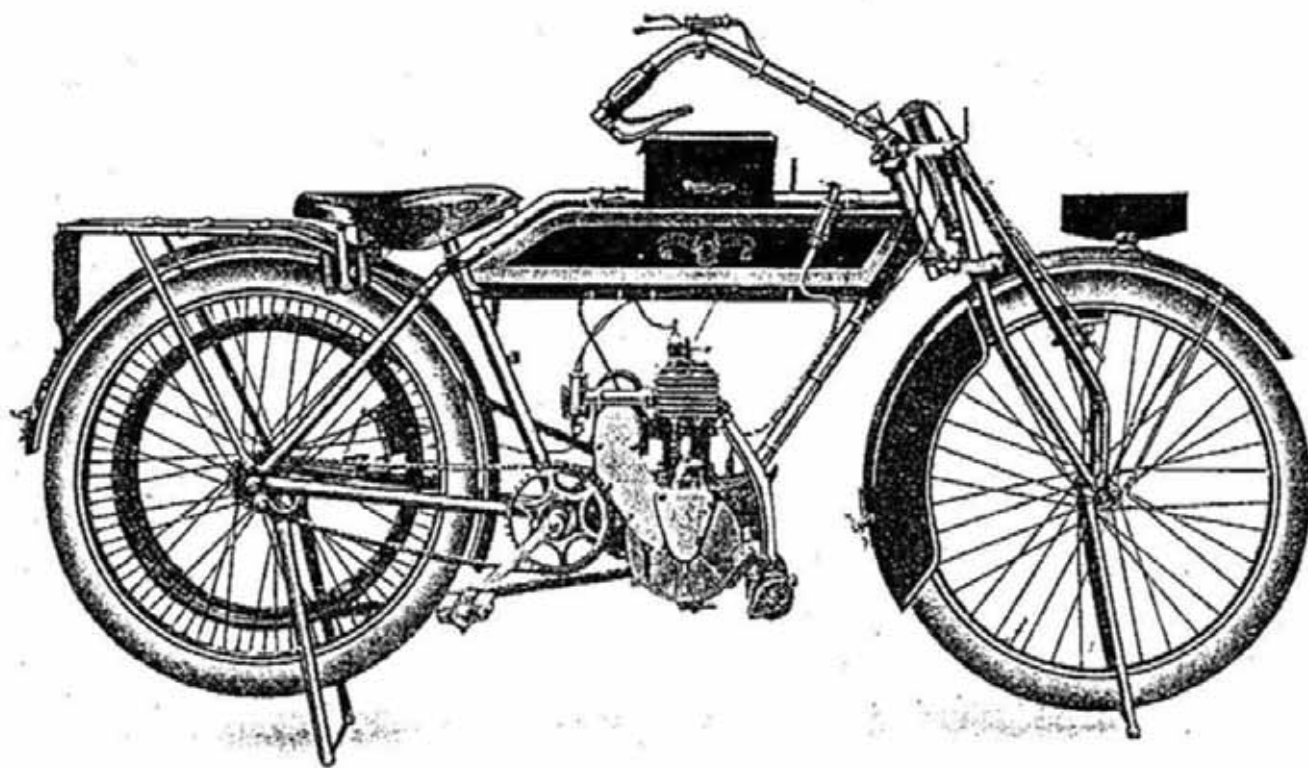
GEAR.—Three speeds and free engine.

WEIGHT.—About 120 lbs.

PRICE.—51 Guineas. This price includes toolbag, full kit of tools, carrier, and number plates.

Stands are fitted to both wheels.

All results prove "MATCHLESS" Motor Cycles to be unequalled for efficiency and reliability.



MODEL No. 2. 2½ h.p. LIGHTWEIGHT.

This model can be supplied fitted with three-speed gear and free engine.

SPECIFICATION

ENGINE.—Latest pattern, $2\frac{1}{2}$ h.p., 70×76 , M.O.I.V.

CARBURETTER.—Latest semi-automatic multiple jet.

IGNITION.—Special light Bosch magneto.

FRAME.—Latest low pattern, with flush joints, built of specially selected steel tube, incorporating our new tubular carrier and girder spring forks. Height of saddle from ground, 30 in.

TYRES.—Standard 26×2 in. Hutchinson non-skid, guaranteed. Other tyres at extra cost.

MUDGUARDS.— $3\frac{1}{2}$ in. wide, fixed in a very rigid manner.

SILENCER.—"MATCHLESS," specially designed to suit this engine, with new type cut-out.

BELT.— $\frac{3}{4}$ in. Shamrock Gloria.

PULLEY.—"MATCHLESS," adjustable.

BRAKES.—Front rim brake, hand-applied, and powerful driving rim brake operated by foot pedal on separate stud.

SADDLE.—Large and comfortable to suit weight of rider.

CONTROL.—Carburetter, by levers on handle-bar. Ignition, by ratchet lever on side of tank. Valve lifter.

TANK.—Capacity, six quarts of petrol and three pints of lubricating oil. Fitted with gauge, drain cock, and combined sight feed force pump.

GEAR.—The standard gear is 5 to 1.

FINISH.—Enamelled grey, and fine-lined gold and green.

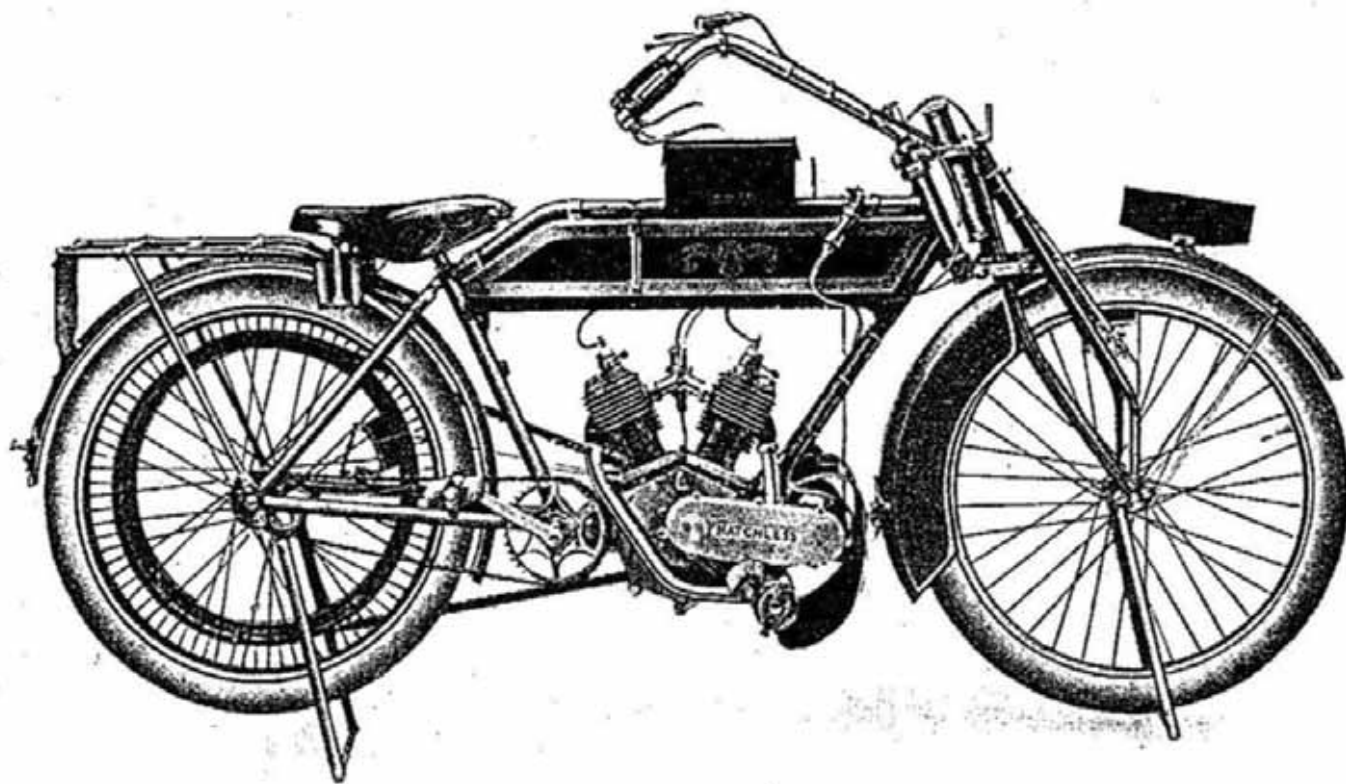
WEIGHT.—About 120 lbs.

PRICE.—40 Guineas. This price includes toolbag, full kit of tools, carrier, and number plates.

Three-Speed gear and free engine, 10 Guineas extra.

Stands fitted to both wheels.

All results prove "MATCHLESS" Motor Cycles to be unequalled for efficiency and reliability.



MODEL No. 2. 3 h.p. TWIN LIGHTWEIGHT.

This model can be supplied fitted with three-speed gear and free engine.

SPECIFICATION

ENGINE.—Latest pattern Twin 3 h.p. 60 × 76, M.O.I.V.

CARBURETTER.—Latest semi-automatic multiple jet.

IGNITION.—Special light Bosch magneto.

FRAME.—Latest low pattern, with flush joints, built of specially selected steel tube, incorporating our new tubular carrier and girder spring forks. Height of saddle from ground, 30 in.

TYRES.—Standard 26 × 2½ Hutchinson non-skid, guaranteed. Other tyres at extra cost.

MUDGUARDS.—3½-in. wide, fixed in a very rigid manner.

SILENCER.—“MATCHLESS,” specially designed to suit this engine, with new type cut-out.

BELT.—¾-in. Shamrock Gloria.

PULLEY.—“MATCHLESS,” adjustable.

BRAKES.—Front rim brake, hand applied, and powerful driving rim brake operated by foot pedal on separate stud.

SADDLE.—Large and comfortable to suit weight of rider.

CONTROL.—Carburetter, by levers on handle-bar. Ignition by ratchet lever on side of tank. Valve lifter.

TANK.—Capacity, six quarts of petrol and three pints of lubricating oil. Fitted with gauge, drain cock, and combined drip sight feed force pump.

GEAR.—The standard gear is 4½ to 1.

FINISH.—Enamelled grey and fine-lined gold and green.

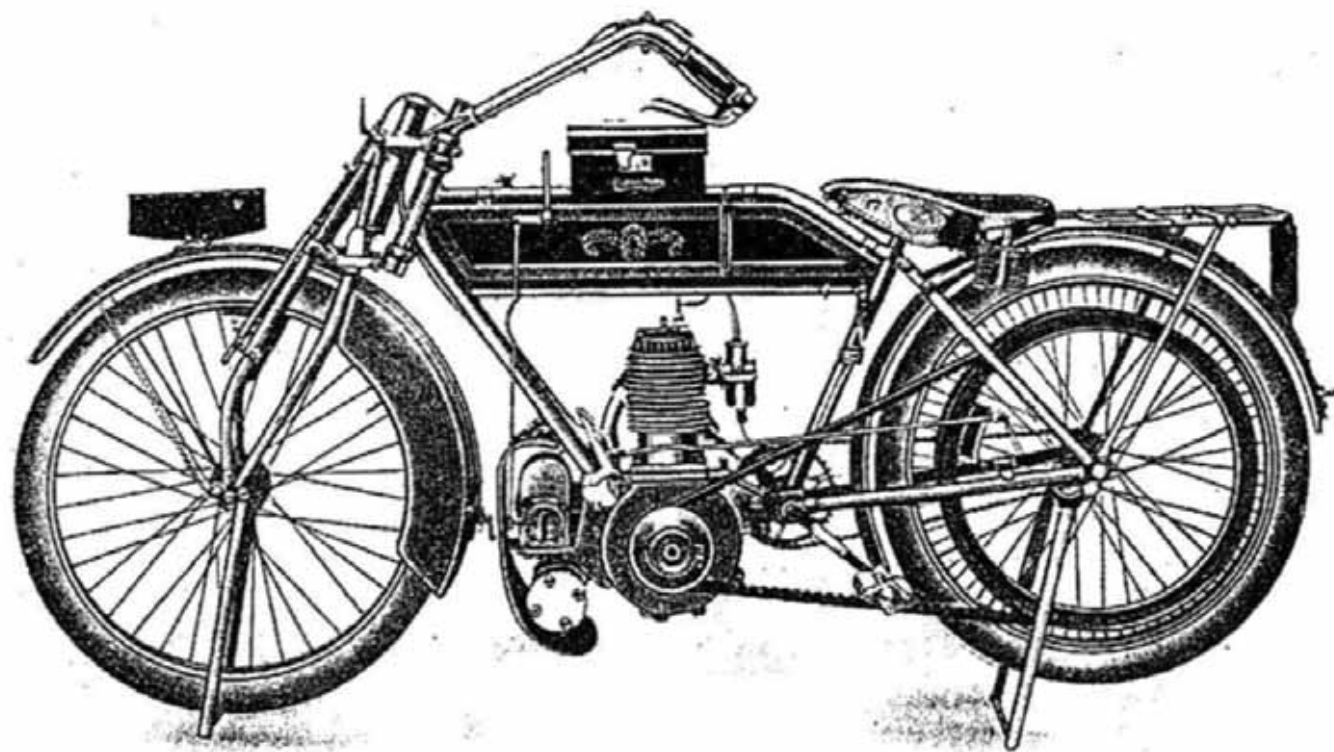
WEIGHT.—About 130 lbs.

PRICE.—50 Guineas. This price includes toolbag, full kit of tools, stands, carrier, and number plates.

Three-speed gear and free engine, 10 Guineas extra.

Stands fitted to both wheels.

All results prove "MATCHLESS" Motor Cycles to be unequalled for efficiency and reliability.



MODEL No. 3. 3½ h.p.

Colonial model, as above, but with engine 5½ in. from ground.

SPECIFICATION

ENGINE.—Latest specially-made $3\frac{1}{2}$ h.p., 85×85 , M.O.I.V.

CARBURETTER.—Latest semi-automatic multiple jet.

IGNITION.—Bosch magneto, chain-driven.

FRAME.—Latest low pattern, with flush joints, incorporating our new tubular carrier and girder spring forks. Height of saddle from ground 30 in.

TYRES.—Standard $26 \times 2\frac{1}{2}$ in. Hutchinson non-skid, guaranteed.—Other tyres according to price.

MUDGUARDS.—4 in. wide, fixed in a very rigid manner.

SILENCER.—"MATCHLESS," specially designed to suit this engine, with cut-out.

BELT.— $\frac{7}{8}$ -in. Shamrock Gloria.

PULLEY.—"MATCHLESS," adjustable.

BRAKES.—Front rim brake, hand-applied, and driving rim brake operated by pedal on separate stud.

SADDLE.—Large and comfortable to suit weight of rider.

CONTROL.—Carburetter, by levers on handle-bar. Ignition, by ratchet lever on tank. Valve lifter.

TANK.—Capacity, seven quarts of petrol and three pints of lubricating oil. Fitted with gauge, drain cock, and combined drip sight feed force oil pump.

GEAR.—Standard gear, $4\frac{1}{2}$ to 1.

FINISH.—Enamelled grey, and fine-lined green and gold.

WEIGHT.—About 160 lbs.

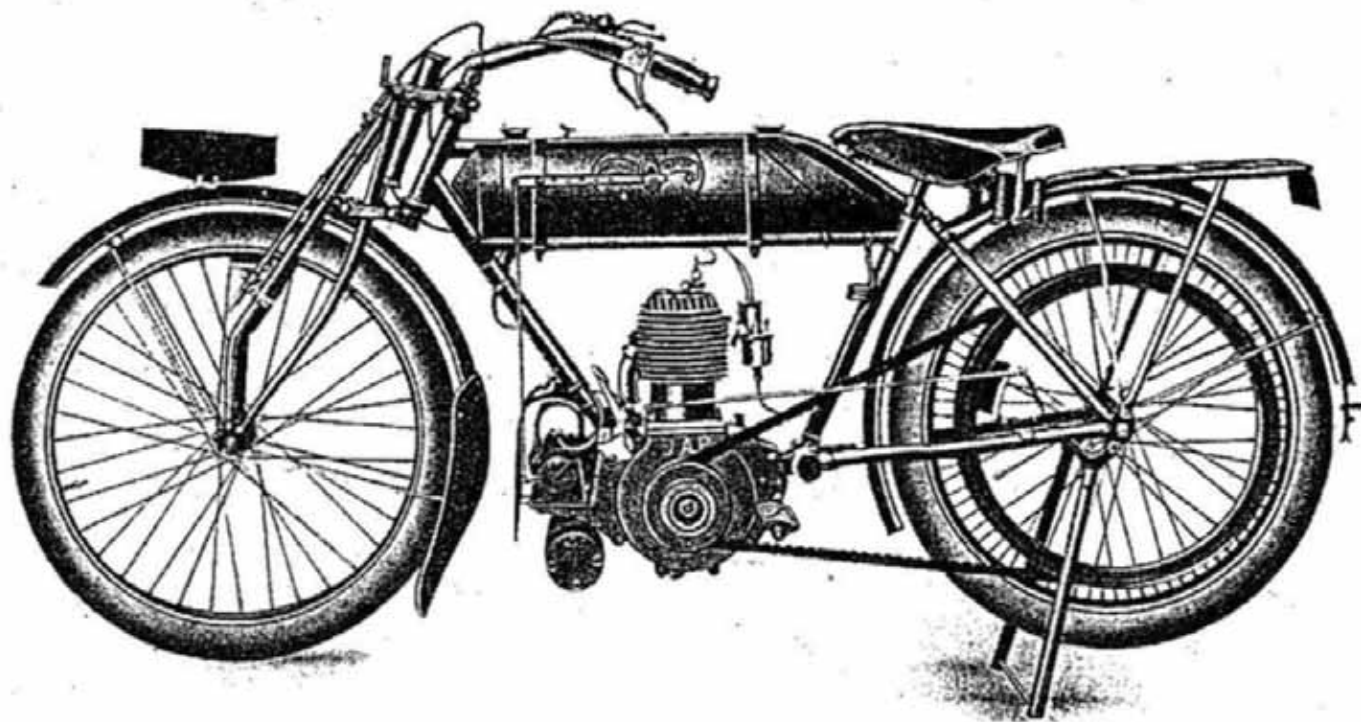
PRICE.—46 Guineas. This price includes toolbag, full kit of tools, stands, carrier, and number plates.

Free-engine clutch back hub, 6 Guineas extra.

Three-speed gear and free-engine, 10 Guineas extra.

Stands fitted to both wheels.

All results prove "MATCHLESS" Motor Cycles to be unequalled for speed and reliability.



MODEL No. 4. 3½ h.p. T.T.

This model can be supplied fitted with "Matchless" six-speed gear.

SPECIFICATION

ENGINE.— $3\frac{1}{2}$ h.p., 85×85 , M.O.I.V., ball bearing.

CARBURETTER.—Latest semi-automatic multiple jet.

IGNITION.—Bosch ball bearing magneto.

FRAME.—Latest low pattern, with flush joints. Height of saddle from ground, 30 in. Girder spring forks.

TYRES.—Standard $26 \times 2\frac{1}{4}$ in. Hutchinson non-skid, guaranteed. Other tyres at extra cost.

MUDGUARDS.— $3\frac{1}{2}$ in. wide, fixed in a very rigid manner.

SILENCER.—"MATCHLESS," specially designed to suit this engine, with cut-out.

BELT.— $\frac{7}{8}$ -in. Shamrock Gloria.

PULLEY.—"MATCHLESS," adjustable.

BRAKES.—Front rim brake, hand-applied, and driving rim brake operated by foot pedal on separate stud.

SADDLE.—Large and comfortable, giving low position to suit weight of rider.

CONTROL.—Carburetter, by levers on handle-bar. Ignition by ratchet lever on side of tank. Valve lifter.

TANK.—Torpedo channelled to fit top tube. Capacity, two gallons of petrol and three pints of lubricating oil. Fitted with drain cock, combined drip sight feed, and one oil pump.

GEAR.—Standard gear, 4 to 1.

FINISH.—Enamelled grey, and fine-lined gold and green.

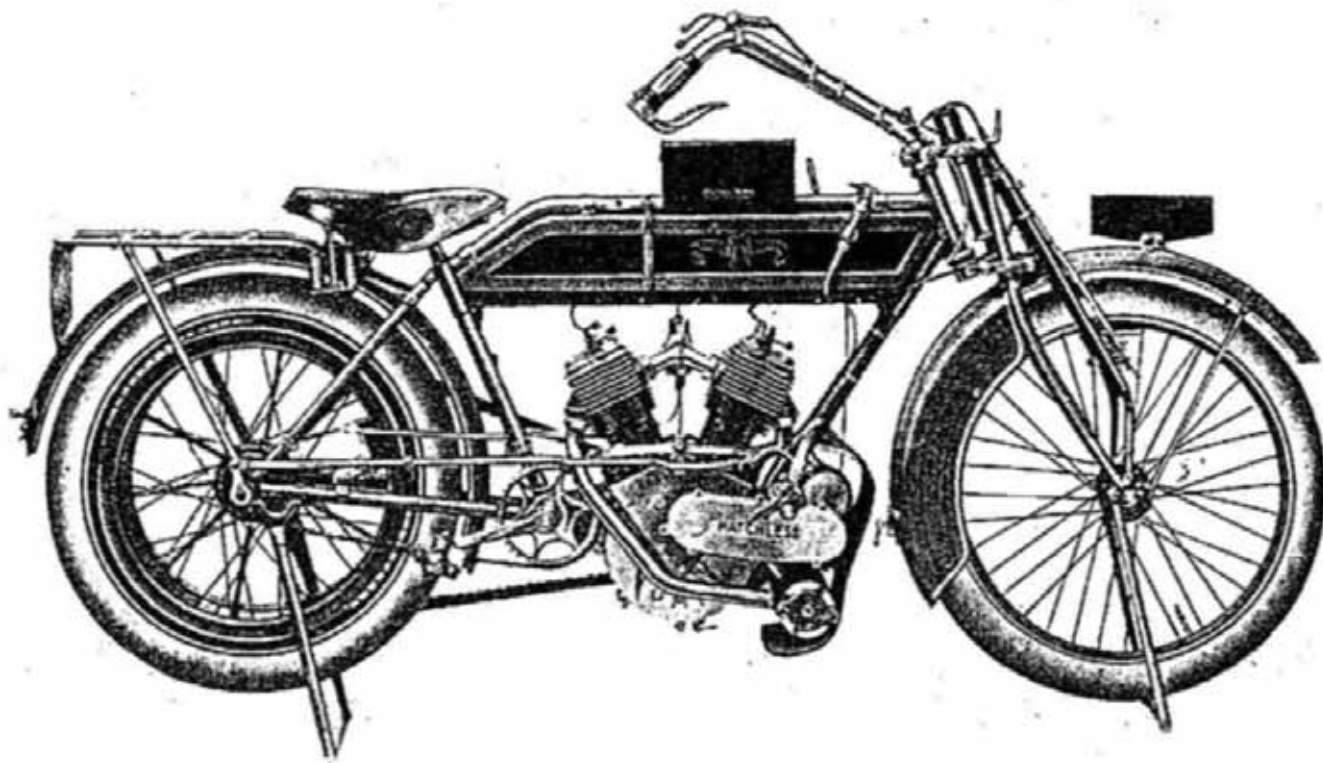
WEIGHT.—About 145 lbs.

PRICE.—48 Guineas. This price includes toolbag, full kit of tools, and number plates.

"MATCHLESS" six-speed gear, 10 Guineas extra.

Stands fitted to both wheels.

The World's Best Motor Cycle, "MATCHLESS" in name and reputation.



MODEL No. 5. TWIN CYLINDER.

Colonial model, as above, but with engine 5½ in. from ground. This machine can be supplied fitted with "Matchless" six-speed gear.

SPECIFICATION

ENGINE.—Specially made.—6 h.p. twin, 70 × 85, M.O.I.V.
8 h.p. twin, 85 × 85, M.O.I.V.

CARBURETTER.—New semi-automatic multiple jet.

IGNITION.—Bosch magneto, ball bearing.

FRAME.—Latest low pattern, with flush joints, incorporating our new tubular carrier and girder spring forks. Height of saddle from ground, 30 in.

TYRES.—Standard 26 × 2½ in. Hutchinson non-skid, guaranteed. Other tyres according to cost.

MUDGUARDS.—4 in. wide, fixed in a very rigid manner.

SILENCER.—“MATCHLESS,” specially designed to suit this engine, with automatic cut-out.

BELT.—1½-in. Shamrock Gloria.

PULLEY.—“MATCHLESS,” adjustable; gears, 3½ to 5 to 1.

BRAKES.—Front rim brake, hand applied, and driving rim brake operated by pedal on separate stud.

SADDLE.—Large and comfortable to suit weight of rider.

CONTROL.—Carburetter, by levers on handle-bar. Ignition by ratchet lever on side of tank. Valve lifter.

TANK.—Capacity 2 gallons of petrol and three pints of lubricating oil. Fitted with gauge, drain cock, and force pump with sight drip feed combined.

GEAR.—The standard gear is 4 to 1, with which we guarantee this machine to climb any hill in England with a rideable surface, and we are willing to make this a condition of purchase. At the same time, the flexibility of the engine is so great that it can be made to fire regularly at walking pace, and attain a speed of fifty miles an hour.

FINISH.—Enamelled grey, fine-lined gold and green.

PRICE.—6 h.p., M.O.I.V. 54 Guineas.
8 h.p., M.O.I.V. 55 „

These prices include toolbag, full kit of tools, carrier, and number plates.

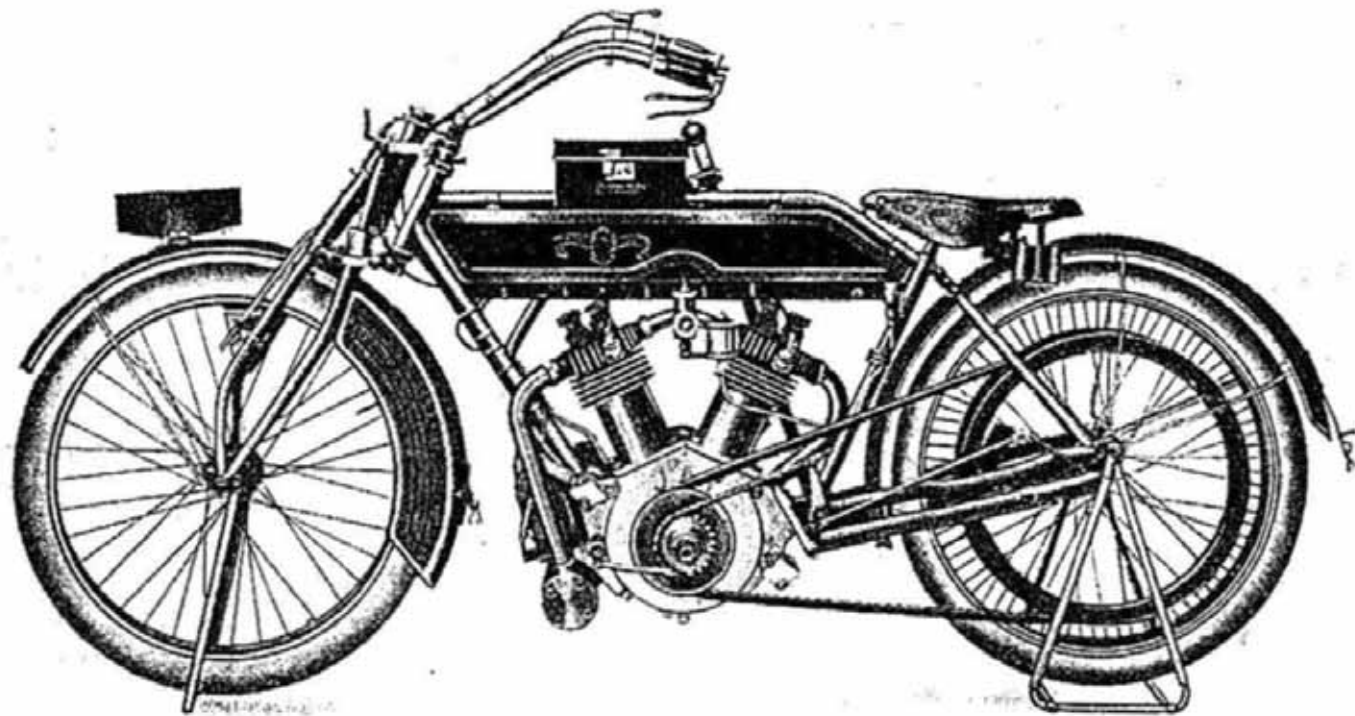
Free-engine clutch back hub, 6 Guineas extra.

Two-speed gear, 12 Guineas extra.

“MATCHLESS” six-speed gear, 10 Guineas extra.

Stands fitted to both wheels.

The Ideal Machine for Fast Touring and Competitions.



MODEL No. 6. 5 h.p. T.T. TWIN CYLINDER.

The Tourist Trophy Winner, 1909 and 1910.

This model can be supplied fitted with "Matchless" six-speed gear.

SPECIFICATION

ENGINE.—Ball bearing, 85 × 65, M.O. overhead valves, 5 h.p.

CARBURETTER.—New semi-automatic multiple jet.

IGNITION.—Bosch ball bearing magneto.

FRAME.—Latest low pattern, with flush joints and girder spring forks. Height of saddle from ground, 30 in.

TYRES.—Standard 26 × 2¼ in. Hutchinson special guaranteed. Other tyres at extra cost.

MUDGUARD.—3½ in. wide, fixed in a very rigid manner.

SILENCER.—"MATCHLESS," specially designed for this machine.

BELT.—1-in. Shamrock Gloria.

PULLEY.—"MATCHLESS," adjustable; gears 3¼ to 4¼ to 1.

BRAKES.—Front rim brake, hand applied, and powerful driving rim brake operated by foot pedal on separate stud.

SADDLE.—Large, giving low position.

CONTROL.—Carburetter, by levers on handle-bar. Valve lifter, by lever on left-side bar. Ignition, by lever on tank.

TANK.—Torpedo, channelled to fit top tube, holding seven quarts of petrol and three pints of oil. Fitted with drain cock, and combined drip sight feed force oil pump.

GEAR.—Standard gear is 3½ to 1.

FINISH.—Enamelled grey, and fine-lined gold and green.

WEIGHT.—185 lbs.

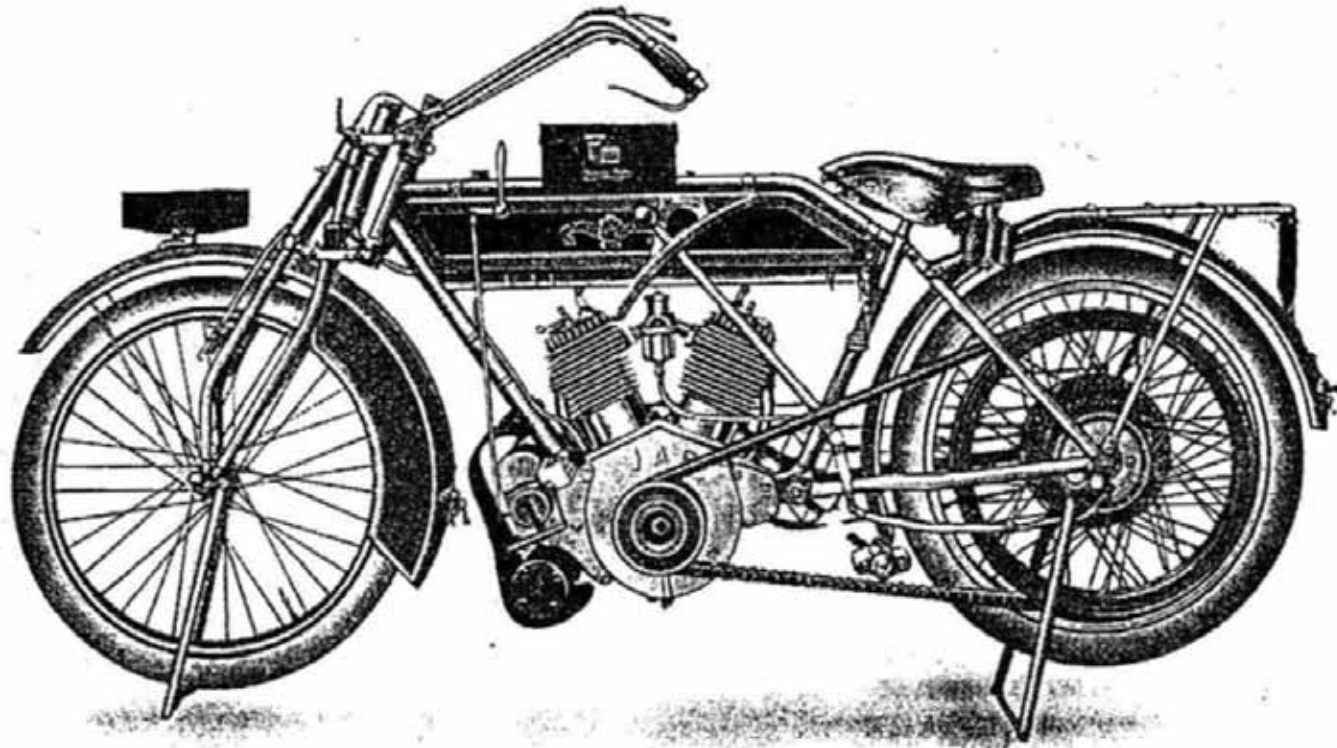
PRICE.—56 Guineas, including toolbag, full set of tools, stands and number-plates.

"MATCHLESS" six-speed gear, 10 Guineas extra.

Stands are fitted to both wheels.

NEW MODEL "MATCHLESS."

The World's Best Touring Model. "MATCHLESS" in name and reputation.



MODEL No. 7. With Two-Speed Gear.

Specially designed and built for Sidecar work. Speed from 5 to 50 miles per hour.

Colonial model, as above, but with engine 5½ in. from ground.

SPECIFICATION

ENGINE.—Specially made 8 h.p., 85 × 85, M.O.I.V.

CARBURETTER.—New semi-automatic multiple jet.

IGNITION.—Ball bearing Bosch magneto.

FRAME.—Latest low pattern, with flush joints, girder spring forks, and tubular carrier.

TYRES.—Heavy Hutchinson non-skid, 26 × 2½ in. on front wheel; non-skid 650 × 65 Car tyre on back.

MUDGUARDS.—4 in. wide, fixed in a very rigid manner.

SILENCER.—"MATCHLESS," with cut-out.

BRAKES.—Front rim brake, hand-applied, back, large diameter, internal expanding, foot-operated band.

SADDLE.—Large and comfortable, padded top.

CONTROL.—Carburetter, by levers on handle-bar. Ignition ratchet lever on tank. Valve lifter, on handle-bar.

TANK.—Capacity, two gallons petrol, three pints oil. Fitted with gauge, drain cock, force pump with drip sight feed combined. Large filler caps.

GEAR.—Two-speed and free-engine, as illustrated.

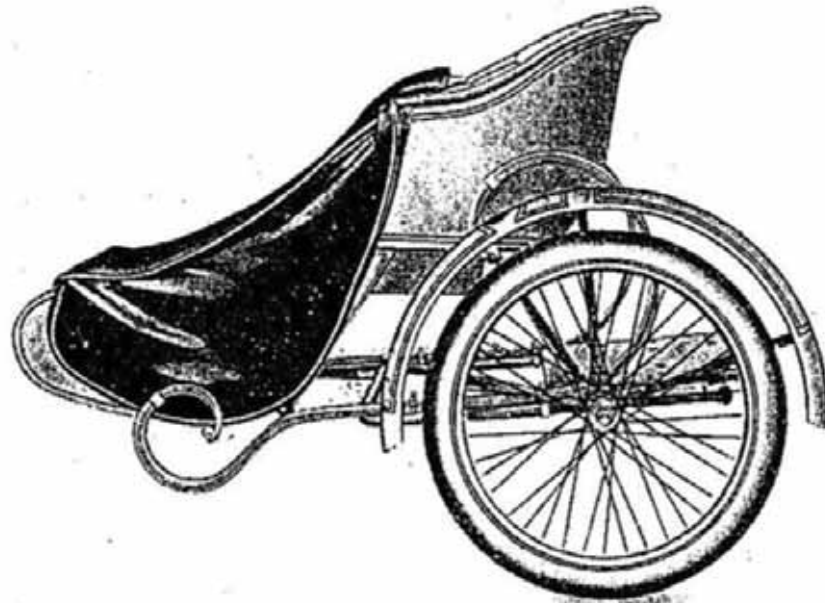
DRIVE.—Two ¾-in. belts running side by side on twin V rim and adjustable pulley. Absolute freedom from slipping. The only satisfactory drive for sidecar work.

FINISH.—Enamelled grey, fine-lined gold and green.

PRICE.—70 Guineas, including kick-up stands, strong leather self-locking toolbag, and tools.

SIDECARS to suit this model, see next page.

Stands are fitted to both wheels.



THE Sidecar illustrated is our Standard Model with rigid wheel, coach-built body, trimmed with best material, cushion, and apron. The underworks are built in our own Works of specially selected weldless steel tubing and highest-grade fittings. By the use of detachable joints the Sidecar can be detached or attached to motor cycle in two minutes. A luggage board is now fitted.



	£	s.	d.
Enamelled and lined to match our Motor Cycle	16	16	0
With special covered Art Cane Body	14	14	0
With finest Art Cane Body ...	13	13	0
Special Model, with Wicker Body	11	11	0

We can supply and fit any make of Sidecar to order at Maker's Prices, plus cost of any alteration required to fit same and cost of re-enamelling to match our machines.

Special quotations will be given for fitting Cape-cart hoods, wind screens, tool boxes, &c., on application.

EXTRAS.

The following prices will be charged for Extras when fitted to New Machines only.

	£	s.	d.		£	s.	d.
Free-engine clutch back hub	6	6	0	Non-skid car tyre to rear wheel for two-speed gear			
“MATCHLESS” gear	10	10	0	model No. 5	1	1	0
Three-speed gear and free-engine	10	10	0	Handle-bar magneto control	0	10	6
Two-speed gear and free engine	12	12	0	Magneto cut-out-switch	0	5	0
Whittle belts instead of rubber				Lettering number plates, three sides	0	3	6
each, $\frac{7}{8}$ " , 14/- ; 1" , 15/- ; 1 $\frac{1}{8}$ "	0	16	0	J.A.P. Carburetter	0	10	0
Butted tubes, ordinary each	0	3	6	Padded-top saddle	0	7	6
Riches, ordinary weight „	0	5	6	Metal mud shield for belts	0	15	0
Riches, extra heavy „	0	10	6				

TYRES.

We have again selected the “Hutchinson” tyres, for 1912. These tyres have been used exclusively by our Racing Staff during the past season with every satisfaction, and purchasers will find that each of our various models is fitted with the most suitable type of tyre for the work required.

For prices of tyres, see page 35.

Any standard make of tyres can be fitted to customer's order, at cost, according to type of tyre selected.
Quotation for fitting same on request.

ACCESSORIES.

We carry a large stock of all leading makes of Lamps, Horns, Watches, Speedometers, Cyclometers, Mirrors, and other fittings made expressly for use on “MATCHLESS” Motor Cycles. We shall be pleased to supply or fit these goods to new machines when ordered. Quotations with pleasure.

SPARES AND REPLACEMENTS.

MAIL ORDER DEPARTMENT.

TO meet the requirements of our clients who may require any spare parts or replacements urgently, we have made arrangements whereby these special orders may receive immediate attention, and goods will in all cases be despatched by the quickest possible route.

To save delay and also to prevent wrong pattern goods being sent, we would respectfully press upon everybody to make their requirements absolutely clear, bearing in mind the fact that we have made considerable alterations to our various models during the past few years, and also that it causes a great amount of unnecessary labour when we have to search through our books to find out when a customer's machine was built, and the special specification of same.

The following pages illustrate and describe most of the special fittings which we use, and where there are more than one size or pattern article, we have endeavoured to make the necessary distinctions.

It will greatly facilitate matters if the following particulars are briefly stated: model and type of machine; horse power and type of engine; whether fitted with automatic, overhead, or mechanically operated side valves; date of manufacture—early or late in season.

Where possible patterns should be sent if parts required are special fittings, and there is a doubt about date of manufacture.

If customers will fully describe their machine with their first order after the issue of this Catalogue, this department will make a special note of same for future reference.

DEPOSIT ACCOUNT.

We strongly advise all riders of "MATCHLESS" Motor Cycles to take advantage of our deposit Account System.

It often occurs that parts may be required by return, but customer not having a ledger account, there is always the inevitable delay of *pro forma* invoice being sent, and we have to await receipt of his remittance before the goods can be despatched. This delay, which sometimes causes considerable inconvenience to the party concerned, can be avoided by opening a deposit account.

A remittance of not less than £2 entitles a customer to this form of account, and when goods are ordered by telegram, 'phone, or by letter, they will be despatched immediately.

When deposit is exhausted, it can be renewed, thus continuing the account. On despatch of goods, we enclose invoice showing cost of same and balance of deposit in hand.

We are at all times prepared to return balance on request. Kindly mention deposit account when ordering.

REPAIR DEPARTMENT.

ALTERATIONS, REPAIRS, NICKEL-PLATING, AND STOVE ENAMELLING.

TO meet the requirements of this rapidly growing part of our business, we have fitted up a special workshop, with every modern convenience for the prompt and skilful carrying out of all kinds of alterations or repairs to Motor Cycles.

This department receives our personal attention, and the supervision is such that clients may rest assured all work entrusted to us will be treated in an intelligent manner, whilst our charges will always be found moderate for the work done.

We are at all times prepared to give expert advice free on all matters appertaining to this department, and where necessary will submit estimates for what is required—guaranteeing workmanship and material used, in the same way as on new machines (see conditions on page 4.)

If you may require your machine (or any part thereof) nickel-plated and re-enamelled, we shall be pleased to undertake this for you, as we have a most up-to-date plant for high-class nickel-plating and stove enamelling.

Bear in mind that we, as manufacturers, have always a large stock of parts on hand, which enables us to carry out alterations and repairs promptly.

Machines or parts sent to us for repairs should have the name and address of sender firmly attached, advising us under separate cover, when sent, together with full particulars of what is required. Carriage must be paid on all goods sent.

TERMS.

All charges in this department are cash, and repairs cannot leave our works until paid for.

Spare Parts: See page 26 onwards in 1912
Sales Catalogue



1912

SPARE PARTS AND REPLACEMENTS.

The following list of spare parts will be found to contain those most usually required. We shall at all times be pleased to quote for any part not mentioned on request. It is necessary for customers to state fully type and horse-power of machine when ordering, as many of the parts differ. If possible, date of manufacture should be stated.

FRAME.

	£	s.	d.		£	s.	d.
Shell Frame only, enamelled and lined	5	0	0	Toolbag, for tank	0	10	0
Ball Races for head, with balls .. per set of four	0	2	0	Special bags for side of carriers .. per pair	1	0	0
Bracket Eccentric	0	5	0	Crank and Chain Wheel, 1911 .. per set	0	8	6
Bracket Axles, 1911	0	2	6	Crank and Chain Wheel, 1912 pattern ..	0	12	0
Bracket Axles, 1912	0	3	6	Pedals, specially strong .. per pair	0	7	6
Set Screws, per pair 6d. Axle Spring ..	0	0	3	Pedal Spindles, with cones and nuts, each	0	1	0
Seat-pillar, 2/-; Seat-pillar Bolt, with nuts ..	0	1	0	Chain, with bolts and nuts	0	6	9
Handle-bar, complete with grips, Touring pattern	0	12	6	Footrest, complete	0	12	6
Handle-bar, complete with grips, T. T. pattern ..	0	10	6	Footrest Long Rod, with nuts	0	3	6
Grips only, 1/3 per pair; Petrol Injector (fits in top of handle-bar)	0	0	6	Footrest Rubbers, with holders .. per pair	0	6	6
Oilcan	0	1	0	Footrest Outside Tubes to carry ditto ..	0	3	0
Luggage Carrier, complete with securing bolts ..	0	10	6	Back Brake, complete	0	14	6
Stand for front wheel	0	10	6	Foot Pedal, 3/6; Long Rod, with nuts	0	1	6
Stand, complete, with securing bolts, for back wheel	0	10	6	Back Part, complete	0	10	6
Saddles, plain top, 15/-; padded top	1	1	0	Spare Pads only, for back brake .. each	0	1	3
				Cross Bolts	0	1	6

FRONT FORKS.

	£	s.	d.		£	s.	d.
Girder Spring Fork, complete, plated and enamelled	3	3	0	Plunger Rod, complete, with cone and nuts ..	0	3	6
Girder Part only, enamelled	1	10	6	Large Spring, 1/6; Small Spring,	0	0	9
Head Clip, with bolt, 5/6; Lock-nut	0	0	9	1912 Inverted Lever Brake	0	15	6
Side Plates per set of four	0	5	6	Front "MATCHLESS" Bowden Brake, 1911 ..	0	15	6
Side Plate, with bracket for generator	0	1	6	Brake Pads per pair	0	1	0
Link Bolts, with nuts .. per set of four	0	4	6	Brake Lever, with wire-spring box and connecting rod	0	10	0
Spring Box, enamelled, with lamp bracket ..	0	5	6	Brake Arch, with shoes, stem and connecting clips	0	6	0
Fork Stem, with crown and ball race	0	10	0	Brake Pads, with holders .. per pair	0	3	0
Top Cap, standard	0	1	6	Fork Clips	0	1	6
Top Cap, with special lampholder	0	3	6				
Bottom Cap, with bronze guide bush	0	3	6				

TANKS.

	£	s.	d.		£	s.	d.
Tank, complete, with all fittings, and enamelled, 1911	3	0	0	Filler Caps, screwed, 1in., 6d. ; 1½ in.	0	0	9
Tank, complete, 1912 pattern	3	10	0	Filler Caps, automatic	0	0	9
Oil Pipe, complete, with unions	0	3	0	Petrol Tap, 1/6 ; Drain Tap.. .. .	0	1	3
Oil Pump, 1911	0	5	0	1912 Combined Petrol Tap and Filter	0	2	9
Petrol Pipe, complete, with unions	0	3	6	Tank Clip, with screws each	0	0	6
New Combined Sight-feed Lubricator complete	0	7	6	Ratchet Lever, with fittings	0	2	6
J.A.P. Automatic Lubricator, 1911	0	12	6	Long Rod for Magneto control	0	1	6
Crank Case Union for ditto	0	1	6	Petrol Filter, with unions	0	2	3
Spare Glass, 10d. ; Needle Valve, 1/- ; Screws per set of three	0	1	6	Petrol Gauge, complete	0	3	0
				Needle Valve, 1/- ; glass	0	0	6
				Cork Washers two for	0	0	1

MUDGUARDS.

	£	s.	d.		£	s.	d.
Mudguards, 1912, front complete	0	10	6	Set of Stays, four, plated, with nuts, 1911	0	6	0
Mudguards, 1912, back complete	0	10	6	Mudguard Flaps each	0	2	6
Mudguards, complete with stays, enamelled and lined, 1911 per set	0	16	0	Magneto Shields "	0	3	6
Back Mudguard, complete, 1911	0	8	0	Front Number-plate	0	1	0
Front Mudguard, complete, 1911	0	8	0	Back Number-plate	0	1	0
Special Detachable Back Mudguards, complete, 1911	0	10	0	Stand Clip, complete	0	2	6

WHEELS—Standard.

	£	s.	d.		£	s.	d.
Front Wheel, complete, enamelled and plated	1	2	6	Road Rim, 650 x 65, heavy enamelled	0	9	0
Front Hub, complete	0	10	6	Driving Rim, plated and enamelled	0	10	0
Front Rim, drilled, enamelled and plated.. .. .	0	9	0	Set of 40 Spokes, cut and screwed, with nipples, and washers for road Rim, 12-gauge, 2/9 ; 10-gauge	0	3	6
Set of 36 Spokes, Nipples, and Washers, 12-gauge, cut and screwed	0	2	6	Set of Spokes, Nipples, and Washers for belt rim	0	2	6
Spindle, with cones and nuts	0	3	6	Back Spindle and Cones, with steps, 1910	0	4	6
Cones, each 1/- ; Nuts, each 2d. ; Spindle.. .. .	0	1	3	Back Spindle and Cones, with nuts, 1911	0	5	0
Back Wheel, complete, with driving rim and free-wheel, enamelled and plated	2	2	0	Spindle, 2/- ; Nuts, each 2d. ; Small Cone	0	1	0
Back Free-wheel Hub, complete	0	17	6	Large Cone, 1/6 ; Ball Cage and Balls	0	0	9
Road Rim, drilled and enamelled	0	7	6				

For free engine back wheels, see page 31 ; for three-speed gear back wheels, see page 31 ; for two-speed gear back wheels, see page 31.

ENGINE PARTS.

TYPE OF VALVE GEAR	A.O.T.V.	M.O.S.V.	M.O.S.V.	M.O.S.V.	A.O.T.V.	A.O.T.V.	OVER-HEAD.	M.O.S.V.	M.O.S.V.
HORSE POWER.	2½ H.P.	2½ H.P.	2 AND 3 H.P.	3½ H.P.	6 H.P.	7 H.P.	5 H.P.	6 H.P.	8 H.P.
MORE AND STROKE	SINGLE. 70X76	SINGLE. 70X76	TWIN. 60X60 60X76	SINGLE. 85X85 90X77½	TWIN. 70X76	TWIN. 70X95	TWIN. 85X58 85X65	TWIN. 76X85	TWIN. 85X85 90X77½
Cylinder only	30/-	30/-	30/-	40/-	30/-	40/-	35/-	40/-	40/-
" head	—	—	—	—	—	—	20/-	—	—
Valve guides	2/8	2/8	2/8	3/-	2/8	3/-	—	3/-	3/-
Valve cap for cylinder	—	2/-	2/-	2/6	—	—	—	2/6	2/6
C. & A. washer	—	2d.	2d.	2d.	—	—	—	2d.	2d.
Inlet valve complete...	6/8	4/7	4/7	5/5	6/8	7/9	5/8	5/5	5/5
" stem	3/-	3/10	3/10	4/8	3/-	3/6	4/8	4/8	4/8
" spring	3d.	4d.	4d.	4d.	3d.	4d.	6d.	4d.	4d.
" cap and cotter	5d.	5d.	5d.	5d.	5d.	5d.	6d.	5d.	5d.
" seating	3/-	—	—	—	3/-	3/6	—	—	—
Intake adapter	2/6	1/4	1/4	1/6	2/6	3/-	—	1/6	1/6
" union nut	1/4	1/4	1/4	1/6	1/4	1/6	1/6	1/6	1/6
Compression tap complete	1/8	1/8	1/8	1/8	1/8	1/8	—	1/8	1/8
Plug and washer only	10d.	10d.	10d.	10d.	10d.	10d.	—	10d.	10d.
Screw valve only	10d.	10d.	10d.	10d.	10d.	10d.	—	10d.	10d.
Compression tap, new	2/6	2/6	2/6	2/6	2/6	2/6	—	2/6	2/6
Exhaust valve stem	3/7	3/10	3/10	4/8	3/7	4/8	—	4/8	4/8
" spring	4d.	4d.	4d.	4d.	4d.	4d.	6d.	4d.	4d.
" Collar and cotter	5d.	5d.	5d.	5d.	5d.	5d.	6d.	5d.	5d.
" complete	4/4	4/7	4/7	5/5	4/4	5/5	—	5/5	5/5
Special exhaust stem	—	—	—	12/6	—	—	12/6	12/6	12/6
Special set overhead rockers	—	—	—	—	—	—	21/-	—	—
Exhaust adapter	1/4	1/4	1/4	1/6	1/6	1/6	—	1/6	1/6
" union nut	1/4	1/4	1/4	1/6	1/6	1/6	1/6	1/6	1/6
Tappet rod and head	1/6	1/6	1/6	1/6	1/6	1/6	3/-	1/6	1/6
" guide	2/6	2/6	2/6	2/6	2/6	2/6	2/6	2/6	2/6
Piston with gudgeon pin	15/-	15/-	15/-	18/-	15/-	18/-	18/-	18/-	18/-
Gudgeon pin only	2/8	2/8	2/8	3/-	2/8	3/-	3/-	3/-	3/-
" set screw	6d.	6d.	6d.	6d.	6d.	6d.	6d.	6d.	6d.
Piston ring	1/8	1/8	1/8	2/-	1/8	2/-	2/-	2/-	2/-
Connecting rod	6/6	6/6	—	7/6	—	—	—	—	—
" middle	—	—	7/6	—	12/9	12/9	12/9	12/9	12/9
" forked	—	—	12/6	—	17/6	19/9	19/9	19/9	19/9
Gudgeon pin bush	2/-	2/-	2/-	2/-	2/-	2/-	2/-	2/-	2/-
Big end bush	2/6	2/6	4/6	2/6	4/6	5/6	—	5/6	5/6
Ball bearing big end	—	—	—	14/-	14/-	—	14/-	14/-	14/-
" pulley side	—	—	—	10/-	—	—	14/-	—	—
Pulley side spindle	3/-	3/-	3/-	4/6	4/6	4/6	5/6	4/6	4/6
Gear side spindle	3/-	3/-	3/-	4/6	4/6	4/6	5/6	4/6	4/6
Crank shaft	3/-	3/-	3/-	4/6	4/6	4/6	5/6	4/6	4/6
Bush for pulley or gear side	2/-	2/-	2/-	3/-	3/-	3/-	—	3/-	3/-
" timing wheel	1/-	1/-	1/-	1/-	1/-	1/-	1/-	1/-	1/-
Small timing wheel	2/8	2/8	2/8	3/-	3/-	3/-	3/-	3/-	3/-
Cam wheel	7/-	7/-	7/-	9/-	9/-	9/-	9/-	9/-	9/-
Cam levers	3/9	3/9	3/9	3/9	3/9	3/9	3/9	3/9	3/9
Exhaust lifter set	5/6	5/6	5/6	5/6	11/-	11/-	11/-	11/-	11/-
" arm	3/6	3/6	3/6	3/6	3/6	3/6	3/6	3/6	3/6
" lever	2/-	2/-	2/-	2/-	2/-	2/-	2/-	2/-	2/-
Engine bolts with nuts	8d.	8d.	8d.	8d.	8d.	8d.	8d.	8d.	8d.
Drain taps (crank case)	6d.	6d.	6d.	6d.	6d.	6d.	6d.	6d.	6d.
Oil plug, solid	4d.	4d.	4d.	4d.	4d.	4d.	4d.	4d.	4d.

SUNDRIES.

	£	s.	d.		£	s.	d.
Silencer, with single connection and cut-out ..	0	17	0	Magneto Sprocket Wheel for engine	0	3	6
Small ditto	0	15	0	Magneto Sprocket Wheel for magneto	0	3	6
Silencer, with two connections and cut-out ..	1	1	0	Magneto Chain Case, complete	0	10	0
Small ditto	0	19	0	Magneto Chain, complete, with connecting bolt ..	0	3	0
Exhaust Pipes, plated, with collars, .. each	0	7	6	Magneto Platform, with front engine plates ..	1	0	0
Inlet Pipes, plated, with unions for twins ..	0	10	0	Back Engine Plates per pair	0	10	0
Fixed Pulley, small, 7/6; large	0	10	0	Large Bolts for fixing engine in frame .. each	0	0	9
Adjustable Pulleys up to 5½ in. diameter, 1911 ..	0	15	6	Bolts for fixing magneto on platform	0	0	3
Adjustable Pulleys over 5½ in. diameter, 1911 ..	0	18	0	Magneto Sparking Plugs, Bosch	0	3	6
Adjustable Pulleys, 1912 new pattern	1	0	0	Magneto Sparking Plugs, "Matchless"	0	3	0
Pulley Keys, 6d.; Pulley Nuts, Small, 4d.; large	0	0	6	Knee Pads per pair	0	6	6

CARBURETTERS.

	£	s.	d.		£	s.	d.
1911 Pattern Complete with handle-bar control ..	1	5	0	Brown & Barlow, complete with handle-bar control	1	10	0
1912 New Pattern do. do. do. ..	1	10	0	J. A. P. do. do. do. ..	2	5	0

CARBURETTER SPARES.

	£	s.	d.		£	s.	d.
Floats, 1/6; Jets	0	0	6	Unions, with nuts	0	0	9
Needle Valves, with collars	0	1	0	Ebonite Handles each	0	0	4
Float-chamber Cover	0	2	6	Outlet Adapters	0	1	6

REPLACEMENTS FOR V.S. TWO-SPEED GEAR.

No.	PARTS.	PRICES.			No.	PARTS.	PRICES.		
		£	s.	d.			£	s.	d.
1714/23	Outside Hub Shell, complete	3	2	0	1742	Bronze Bush Casting for Gear Wheel (inside)	0	1	4
1723	Bronze Bush for ditto, (rough)	0	1	3	1717/1968	Planet Pinion, with bronze bush	0	6	9
1724	Belt Rim Hub Shell	0	13	6	1968	Bush for ditto (finished)	0	1	8
1953	Brake Drum	0	6	10	1730	Axle for planet pinion	0	0	10
1951	Brake Ring Cover	0	9	3	1728	Locking Ring (small) for belt rim hub	0	1	3
1961	Low speed Brake Ring	0	6	0	1793	Locking Ring (large) for Brake disc ..	0	1	3
1979	Brake Ring (phosphor bronze)	0	8	9	1963	Expanding Bolt for Brake ring	0	1	6
2366	Steel face Plates for low-speed band per pair	0	0	4	1981	Expanding Bolt for low-speed ring .. .	0	1	6
2367	Steel-face Plates for Brake band .. .	0	0	4	1959	Screw for fixing inside dog clutch .. .	0	0	4
1955	Fixed Dog Clutch (inside)	0	9	10	1957/1202	Bolts with nuts for push plate each	0	0	6
1954	Outside Dog Clutch	0	9	10	106	Castle Nut, 7 M.M.	0	0	2
1964	Small Lever for brake expander .. .	0	1	8	1952	Hub Shell Cover Plate	0	7	3
1958	Bushing for push plate bolts (5 to set)	0	2	0	1738	Screw for ditto	0	0	3
1984	Springs for ditto (5 to set)	0	0	5	2364	Packing for Hub shell cover plate .. .	0	0	6
1737	Pushing Plate for clutch	0	9	0	1966	Bolts for fixing brake ring	0	0	4
1735A	Cam Lever	0	6	6	1960	Hardened Pin for Clutch Plate	0	0	2
1736A	Cam Ring (to screw on axle)	0	3	0	2263	Pin for Clutch	0	0	2
1736	Long Cone for left side	0	1	9	1962	Oil Shell for axle	0	0	1
1193	Adjusting Cone (right hand)	0	1	0	2019	Disc for holding felt packing	0	0	9
1794	Cup for Balls	0	1	0	2019A	Disc for holding felt packing	0	0	5
1794A	Dust Cover for same	0	0	1	2021	Dust Cover (screwed) for pushing-plate	0	3	0
1734	Main Hub Axle	0	2	0	2020	Large Felt Washer	0	0	6
1506	Nuts for main axle each	0	0	3	2022	Small Felt Washer	0	0	4
2097	Thin Screwed Locknut for cone	0	0	4	2339	Disc for belt rim hub (hardened) .. .	0	0	11
2362	Ball Cage, with balls, for push plate cam	0	1	0	2340	Disc for outside hub (hardened) .. .	0	0	11
1721	Inside Free-wheel Hub	0	14	3	2361	Lubricator	0	0	8
1728	Gear Wheel with inside thread	0	4	10	2365	Felt Packing for brake ring cover .. .	0	0	9
1719/22/42	Gear Wheel with outside thread and 2 bronze bushes	0	15	6	2368	Steel Washer for brake ring cover .. .	0	0	3
1722	Bronze Bush Casting for ditto (outside)	0	0	8	342	Small Washer (6 to set)	0	0	2
					2360	Free Wheel complete	0	12	6

OPERATING GEAR FOR V.S. HUBS.

		£	s.	d.			£	s.	d.			
1950A	Frame Clip for change-speed lever ..	0	3	0	2095/2252	Connecting Clip and Screw for same, 11 mm.	0	0	9			
2344	Bolts with nuts for ditto (2)	0	0	8	1994A	Low-speed pulling Tube, with yoke end	0	2	6			
1978/1982	Main Left-hand Lever	0	11	3	1996	Low-speed pulling Rod, with yoke end	0	2	6			
1993/2369	Wood Ball and Fixing Screw	0	0	5		Connecting Clip and Screw for same, 11 mm.	0	0	9			
2000	Tank Bracket for quadrant	0	5	0	1797A	Brake Tube, with yoke end	0	2	6			
2001	Quadrant Ratchet	0	1	6	1797B	Brake Rod, with yoke end	0	2	6			
2002	Quadrant Outside Plate	0	0	9		Connecting Clip and Screw for same, 9 mm.	0	0	9			
2003	Quadrant Spacers (2)	0	0	4	2004	Yoke Ends for Rods	0	0	6			
2005	Screws and Nuts for ditto (2)	0	0	8	1196A	Yoke Ends for Tubes	0	0	6			
531	Screws and Nuts for quadrant Plate (2)	0	0	4	1196	Yoke Ends for Brake Tube	0	0	6			
1994	High-speed pushing Tube, with yoke end	0	2	6								
1995	High-speed pushing Rod, with yoke end	0	2	6								
£ s. d.					£ s. d.							
Complete V.S. 2-Speed Hub, with all operating gear and rods					12	12	0	Built up with road and driving rims, enamelled and plated		14	14	0

FREE ENGINE HUBS.

		£	s.	d.			£	s.	d.
Free Engine Back Hub, complete, with free-wheel and all operating rods and fulcrum (foot operated). Specially made by The Villiers Gear Co., for use on "MATCHLESS" Motor Cycles, from 3½ to 6-h.p.	6	6	0	Built up into wheel with road and belt rims, enamelled and plated	8	8	0	For List of Spare Parts see special Leaflet.	

THREE-SPEED GEARS.

		£	s.	d.			£	s.	d.
Armstrong Triplex, as used on "MATCHLESS" Motor Cycles, complete, with all operating gear	10	10	0	Built up into wheel, with road and driving rims, enamelled and plated	12	12	0		

An extra heavy Three-speed Hub, suitable for Sidecar work, will be manufactured during 1912.

For further particulars and List of Spare Parts, see special Leaflets.

"MATCHLESS" VARIABLE PULLEY SIX-SPEED GEAR.

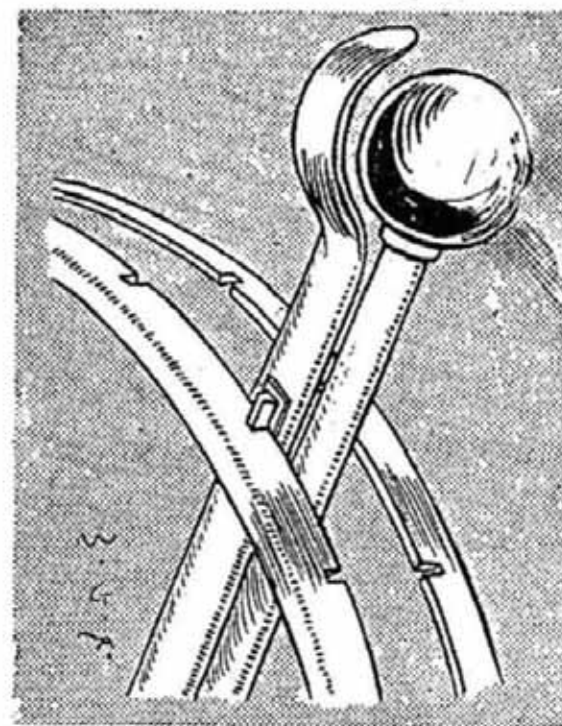
THIS gear is an adaptation of a well-known and well-tested principle in a most simple, light and efficient form. It was originally designed for use on our T.T. Models, and was used with every satisfaction by all riders on "MATCHLESS" machines in the 1911 T.T. Race. The gear in this form and fitted to this type of machine, has been so successful, that in response to representations made by riders who have used the gear on T.T. machines, it was decided to introduce the gear on our standard touring models for 1912. The gear has been subjected to the severest tests, both in the 1911 T.T. Race and previous to that, it was under a continual road test for nine months. During the whole of the tests, and since marketing this gear, we have not had a single instance of trouble occurring with any part of one of these gears, and can, therefore, recommend it with every confidence. It has outstanding advantages over all other types of variable gears which are roughly as follows:

SIMPLICITY.—The only working part of the pulley subjected to wear are the ball thrust bearings, and as these are working under about one-tenth their normal load, they, therefore, last indefinitely.

EASE OF CONTROL.—The gear is operated by a back and forward movement of a pair of levers. This movement is much more easily effected when balancing a motor bicycle than the movement in a horizontal plane of a crank handle or lever. The arrangement of independent control of the expanding pulley and back wheel enables the tension of the belt to be adjusted within very wide limits. It is thus possible to run the belt slack on the high gears and tighten it to any degree of tightness required on the low gears.

LIGHTNESS.—The whole gear adds about 8 lbs. only to the weight of machine.

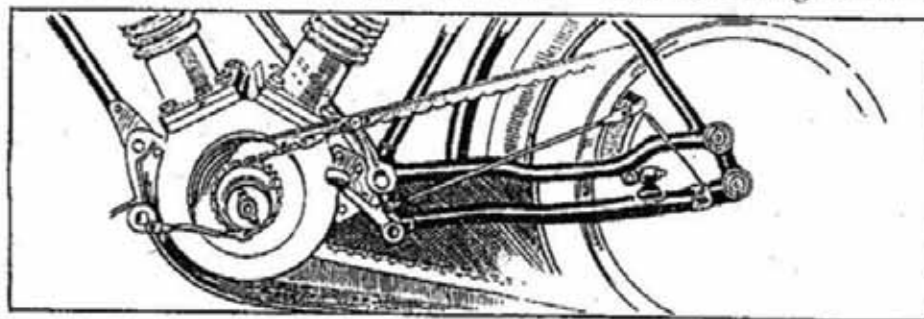
RIGIDITY OF BACK WHEEL.—The control gear for the movement of the back



Arrangement of Control Levers in Quadrants.

wheel is so designed that it is impossible for play to develop in the wheel mounting, even after prolonged use.

TENSION OF BELT.—The angular motion of the pulley operating lever is converted to a circular motion to the expander sleeve of the pulley by means of a short length of chain working over a sprocket cut on the sleeve. This feature ensures that the movement of the pulley at all positions is proportional to the movement of the back wheel. This is a protected feature of this gear and is not found on any other.



General arrangement of Expanding Pulley Gear operating Mechanism and Footbrake.

DESCRIPTION OF THE GEAR.

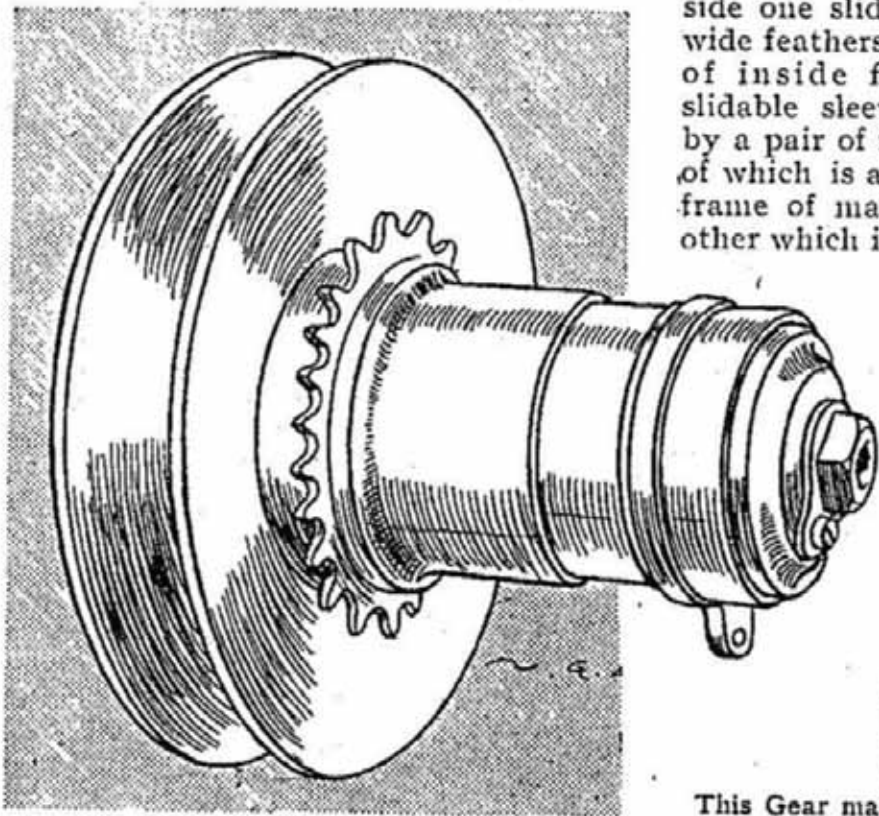
The principle upon which this gear works is that of an expanding engine pulley, the belt tension being maintained by a movement of the back wheel. The arrangement of each side of the wheel is very like a parallel ruler, in that the back axle being secured as it were to the ends of the two lower rulers, is able to move backwards and forwards in a parallel plane when actuated by a lever. The construction of the pulley consists of two main flanges and mechanism for operating the movable flange. The inside flange is keyed on to the

engine shaft, while the outside one slides along three wide feathers on the sleeve of inside flange. This slidable sleeve is actuated by a pair of face cams, one of which is anchored to the frame of machine, and the other which is controlled by

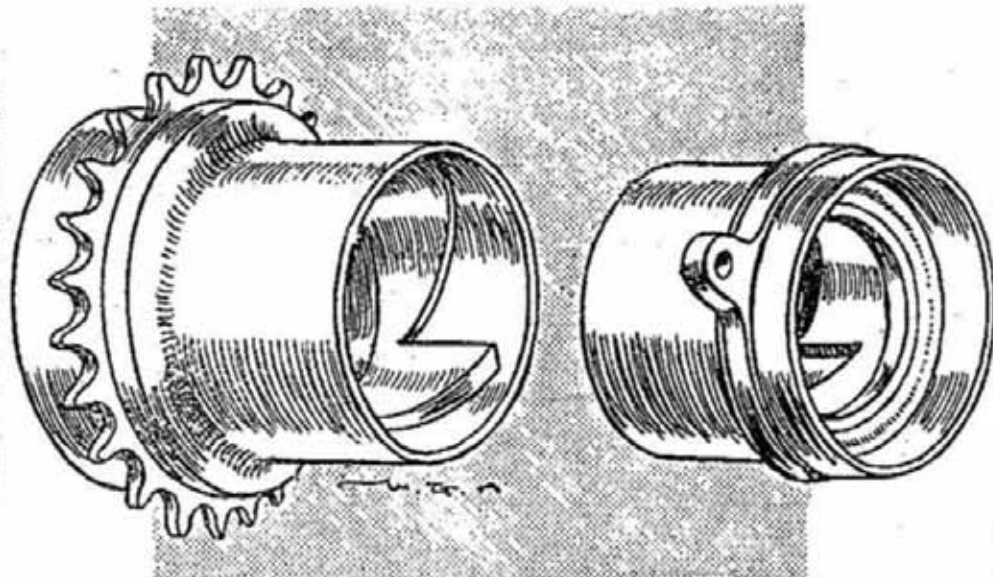
the movement of the operating lever. This mechanism is fully enclosed and dust-proof, and is provided with thrust bearings at each end, so that there is no end thrust whatever upon the engine shaft. The operating gear consists of two long levers working in a quadrant, the larger one fitted with a ball end, working in the inner quadrant and the other smaller lever working in the outer quadrant. Thus, whereas both can be used simultaneously by clasping them together to raise or lower the gear, they can also be used separately to obtain any variation in belt tension desired. To enable the two levers to be continually used together, the spring on the levers forcing them into the notches of the quadrant is exactly equal, so that when the ball end of the wheel lever and curved handle of the pulley lever are clasped together, both levers disengage from their respective quadrants. The gear ratio obtainable on the standard gear varies from 7 to 1 to $3\frac{1}{2}$ to 1. This variation will be found ample for ordinary use owing to the fact that on all gears the drive is direct and the percentage of power absorbed by the pulley does not exceed one per cent.

This Gear may be fitted to the following Models:

FITTING	-	$3\frac{1}{2}$ h.p. T.T. Single Cylinder; 5 h.p. T.T. Twin Cylinder; 6 h.p. Touring Model; 8 h.p. Touring Model.
COST	-	At a cost of £10 10s. above the standard price of either model.



Complete Pulley assembled.



Face Cam Mechanism controlling moveable flange of pulley.

MAGNETOS AND SPARE PARTS.

BOSCH BALL-BEARING MAGNETOS	Type DA I. for Lightweight Singles " DA IV. " Twins " ZE I. Standard Singles " ZE V. " Twins	} Prices on Application.
---	---	--------------------------------

Spare Parts for 1911 DA 2 and 1912 ZE I Magnetos.

	s.	d.
Carbon Holder with carbon and spring complete ..	1	9
Carbon and Spring	0	5
Contact Breaker, complete, with bell-crank lever and platinum screws	19	3
Bell-crank Lever	3	5
Flat Spring for same	0	2
Short Platinum Screw, 5/1 ; Long ditto	5	11
Nut for long platinum screw	0	1
Timing Lever, complete, with brass ring, steel segment, and short circuit terminal	6	1
Insulated Bush, with spring-screw and nut, for timing-lever case	0	7
Spring Carrier with flat spring for depressing dust cover, complete	0	3
Dust Cap only, 4d. ; screw for segment	0	1
Complete Spring Clip Oil Cup	0	7
Screw for fixing contact breaker	0	3
Nut for front spindle	0	2
Carbon and Spring for bell-crank lever	0	5
Screws for fixing top dust cover each	0	2
Terminal for Magneto end of wire	0	6

	s.	d.
Terminal for Sparking plug	0	2
High Tension Cable, complete, with terminals.. ..	1	6
Sparking Plugs (Bosch single point)	3	6

Spare Parts for 1911 DA V and 1912 ZE V.

Carbon Holder, complete, with securing nut, carbon, and spring	2	0
Holder only, 1/5 ; Carbon and spring, 5d. ; Nut ..	0	3
Timing Lever complete, with brass ring and lever, short circuit clamp, and steel segments	7	7
Steel Segments, Mark I. and Mark II. each	2	1
Fixing Screws "	0	1
Insulating Bush, with spring, screw and nut.. ..	0	7
Brass Dust Cap, 4d. ; Spring, Clip and Screw.. ..	0	7
Snap Cup Oiler, complete	0	7
Contact Breaker, complete, with bell-crank lever, platinum screws, flat spring, and contact piece ..	19	3
Platinum Screws, each 5/1 ; Bell-crank Lever ..	3	5
Nut for platinum screw, 1d. ; Contact Breaker Screw	0	3
Snap Terminal, 4d. Plug Terminal	0	2
High tension Wire, complete, with terminals.. ..	1	6
Nut and Washer for front spindle	0	3

Case containing COMPLETE REPLACEMENT:

Set for DA I Magnetos
 " DA IV " "
 " DA 2 " "

Set for DA V Magnetos
 " ZE I " "
 " ZE V " "

} Prices
 on
 Application.

As used on "Matchless" Motors.

NOTE.—Contrary to the Motor which requires very frequent lubrication, the "Magneto" must only be lubricated very little, using very fine oil. It is absolutely essential that no oil be allowed to get on to contact breaker and platinum points.

TYRES.

We carry a very large stock of Non-Skid Hutchinson Tyres, as fitted to "MATCHLESS" Motor Cycles.
Agents and Private Riders can rely upon us being able to supply any of the sizes as listed below, on receipt of order.

DESCRIPTION.	SIZES.	COVERS, B.E.		TUBES.	
		PRICE.	JOINED.	BUTTED.	
Brooklands ..	26 x 2	25/6	8/3	10/6	
	26 x 2½	26/6	10/3	12/9	
<i>As fitted to 2½ h.p. Motor Cycles.</i>					
Tourist Trophy ..	26 x 2½	36/-	10/3	12/9	
	26 x 2½	37/-	11/3	14/3	
<i>As fitted to 3 h.p. Twin and 3½ h.p. Singles.</i>					
Passenger ..	26 x 2½	46/-	10/3	12/9	
	26 x 2½	47/6	11/3	14/3	
	26 x 3	50/3	13/3	—	
<i>As fitted to Machines from 5 to 8 h.p.</i>					
Car	650 x 65	50/-	12/6	—	
<i>As fitted to back wheels of Passenger Models.</i>					

Any other size or make of Tyre can be supplied at a few hours notice by special arrangements with all the leading Tyre Manufacturers.

NOTE.—26 x 2 & 26 x 2½ fit Standard 26 x 2 rims; 26 x 2½ & 26 x 3 fit Standard 26 x 2½ rims; 650 x 65 fit Special Car rims.

BELTS, &c.

Shamrock-Gloria Rubber Belts, as used on "MATCHLESS" Motor Cycles:

¾	1	1	1½ in.
1/9	2/1	2/3	2/8 per foot.

Whittles Link-Grip Leather Belts, recommended for Side-car work:

¾	1	1	1½ in.
—	3/6	4/-	4/3 per foot.

Belt Fasteners: "Standard" detachable, 1/-; "MATCHLESS" adjustable, 1/3. Belt Punches, "Hercules," 2/-.



“MATCHLESS” Motor Cycles

Hold practically all Official World's Records from
1 mile to 775 miles and 2 hours to 24 hours.

Winners of the Great International TOURIST TROPHY RACE

1907, 1909, 1910. Second 1908, 1910, 1911

ALSO

The Workington Challenge Trophy	-	-	-	Permanently
“The Autocar” Challenge Trophy	-	1906, 1907, 1908, 1909, 1911		
The “Motor Car Journal Cup”	-	-	-	1908, 1910, 1911
The Du Cros Challenge Trophy	-	1906, 1907, 1908, 1909, 1910		

WINNING SAME PERMANENTLY.

No other Motor Cycle can show such continued success.