

THE CASE FOR THE LONG STROKE.

THE MOTOR CYCLE

Largest Net Sale. 1^D
 Founded 1903.

COVERS EVERY PHASE OF THE MOVEMENT AND CIRCULATES THROUGHOUT THE WORLD

No. 720. Vol. 18.

Thursday, January 11th, 1917.

Price 1d.

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Published Weekly.

1ST FOR VALUE IN UP-TO-DATE MODELS



See our big stock before you choose either New or Second-hand Model. The kingdom's largest selection of best makes in the very latest models at lowest cash prices or easy terms that cannot be beaten. Liberal exchanges. Instant delivery from stock. Full guarantee.

WAUCHOPE'S
 9, SHOE LANE,
 FLEET ST., LONDON.

*Phone—5777 Holborn.
 Wires—Opifcer, London.

TO-DAY'S LIST INCLUDES THESE BIG BARGAINS. COPIES POST FREE.

h.p.	Model	Price
0	A.J.S. and de Luxe Sidecar, 3-speed	90 gns.
0	WOLF	£15 0
2	B.S.A., free engine model	£25 0
2	1915 2-stroke GLYNO, 2-speed	£22 10
3	1916 SUNBEAM, 3-speed, and Sidecar	£85 0
3	1915 ROYAL ENFIELD, 2 sp. ed	£42 0
4	SINGER, 2-speed, and Sidecar, C.B.	£45 0
8	MORGAN de Luxe, 1916, full equip.	90 gns.
3	INDIAN, twin, full equip., 3-sp., k/st.	£40 0
4	DOUGLAS and Sidecar, 1915, 3-speed	£67 10
5	N.S.U., 1914, C.B. Sidecar, 2-sp., k/st.	£35 0
4	JAMES, 1914, kick, C.D., and Sidecar	£45 0
3	ROVER, 1914, and C.B. Sidecar 3-sp.	£42 10
2	lady's DOUGLAS, 2-sp., clutch, k/st.	£52 10
3	TRIUMPH, 1913, 3-sp., F.E., pedals	£35 0
3	ARIEL, 2-speed, W. & P. engine	£20 0
2	NEW IMPERIAL, 2-speed, J.A.P.	£27 10
1	J.E.S., 1915 model	£15 0
8	MORGAN (new) Grand Prix, fully eq.	£124 18
2	DOUGLAS, 1914, 2-speed, kick start	£39 10
10	SAXON Light Car, 2-seater, brown finish	£120
4-5	BAT, twin (new), 2-speed	£63 5
4	1915 B.S.A. and S'car, all chain, 3-sp.	£60 0

DON'T LISTEN TO INTERESTED PARTIES, YOUR OWN HEALTH AND COMFORT DEMAND AN

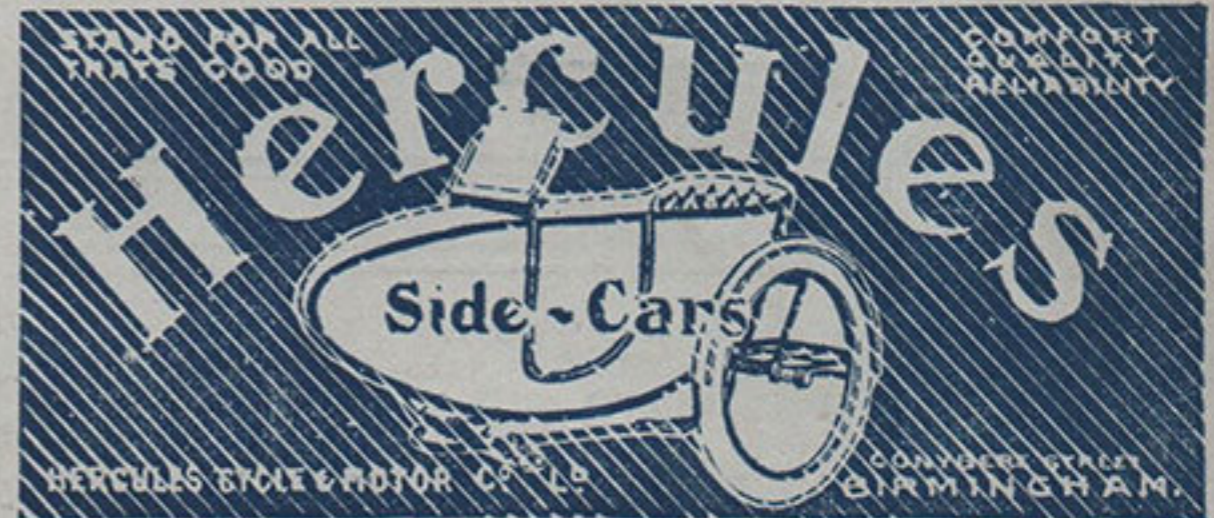
XL ALL

If it is not 50% more comfortable than any other Saddle, you can have your money back in full.



Test one for yourself FREE, and you will ride in ease long distances without backache or fatigue.

JUNIOR, 21/- ORDINARY, 28/6.
 XL-ALL WORKS, Hall Green.



DON'T use a cheap, any-name Sidecar in war time or any other time. It isn't economy, but extravagance.
MONTGOMERY

Sidecars have been famous since 1902.
 W. MONTGOMERY & CO., The Pioneer Firm, COVENTRY.

Roy H. Sole London Agents—W. H. ELCE & CO., 15, Bishopsgate Ave., E.C.

FARES ARE UP 50% — but the owner of a **BAT**

"THE PULLMAN CAR OF MOTOR CYCLING," is independent of railways.

BAT MOTOR MFG. CO., FENGE, LONDON, S.E.

Douglas
 Broke the Barriers



of convention when he designed his first machine. He has gone on breaking them ever since with the utmost success, as witness the remarkable speed, power, and endurance of the handy little Douglas lightweight—the most popular machine in the world.

Do you ride a Douglas?
 DOUGLAS BROTHERS,
 Kingswood - BRISTOL.

Dunhill's Sidecars
 Illustrated Catalogue Post Free

359 and 361 EUSTON ROAD LONDON N.W.

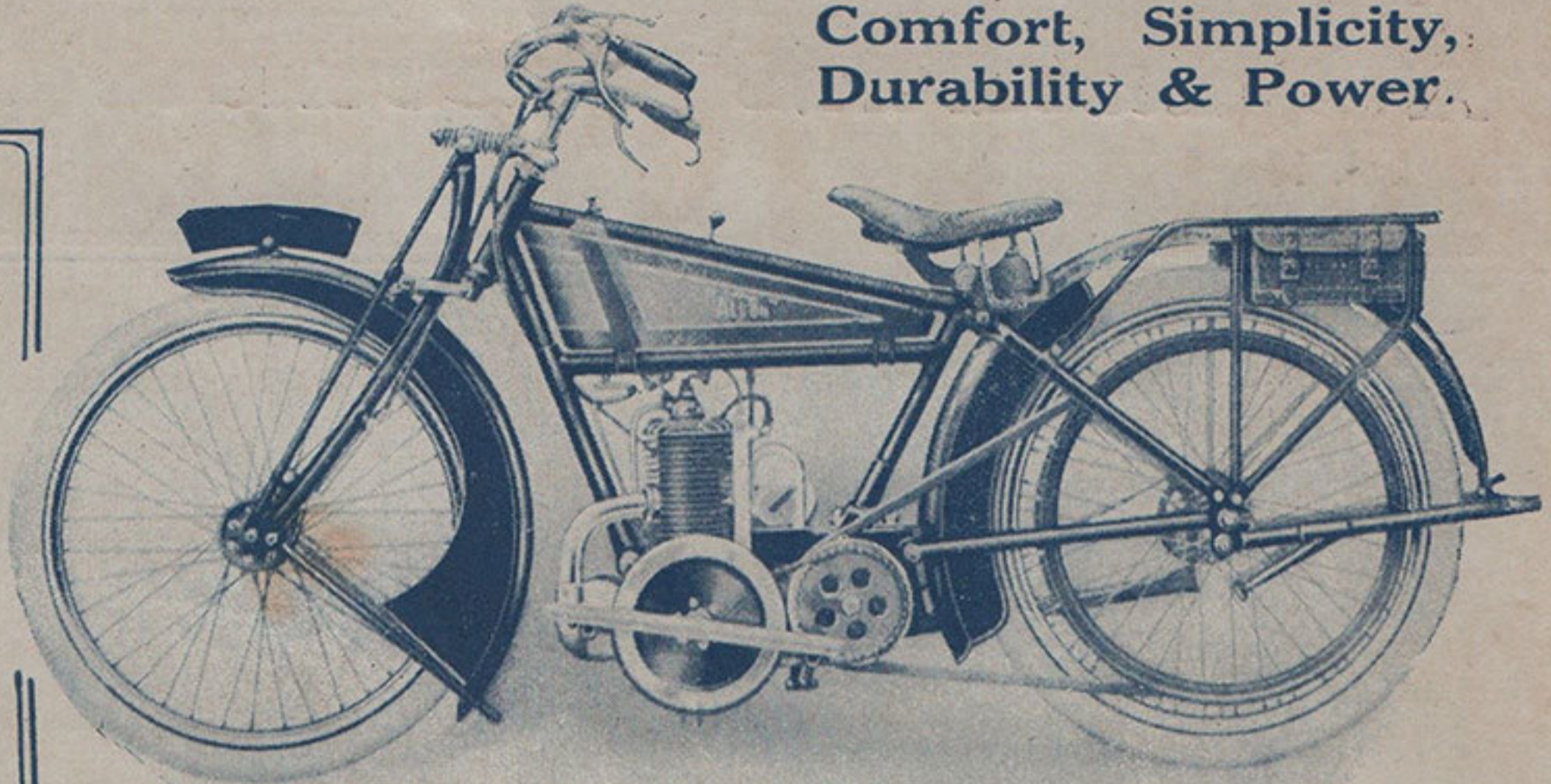
14/-x12.
 168=
 £8.80
 3.4.0.150.
 5.4.0

8m per diem, one way.

8.2.-6.52.26.2-106-33)848(34. @ 2/- 644 3.4.0
 150-750 25 75.8

For 1916 **ALLDAYS** PATENT **ALLON**
Two-Stroke

The "ALLON" is the hall mark of perfection—
**Comfort, Simplicity,
 Durability & Power.**



*ALLDAYS & ONIONS LTD.
 BIRMINGHAM & LONDON*

We are able to supply this perfect two-stroke lightweight machine. Book your order now to ensure early delivery.

Single-speed Model **£36**
 Two-speed Model - **£42**
 Two-speed Clutch - **£45**
 Model de Luxe **£52 10**
Plus 5%.
Write for Catalogue.

Alldays & Onions (Pneumatic Engineering) Co., Limited,
 Matchless Works, **BIRMINGHAM.**
 London Showrooms:
 58, Holborn Viaduct, E.C. Est. 1850.

Riding is better than Walking

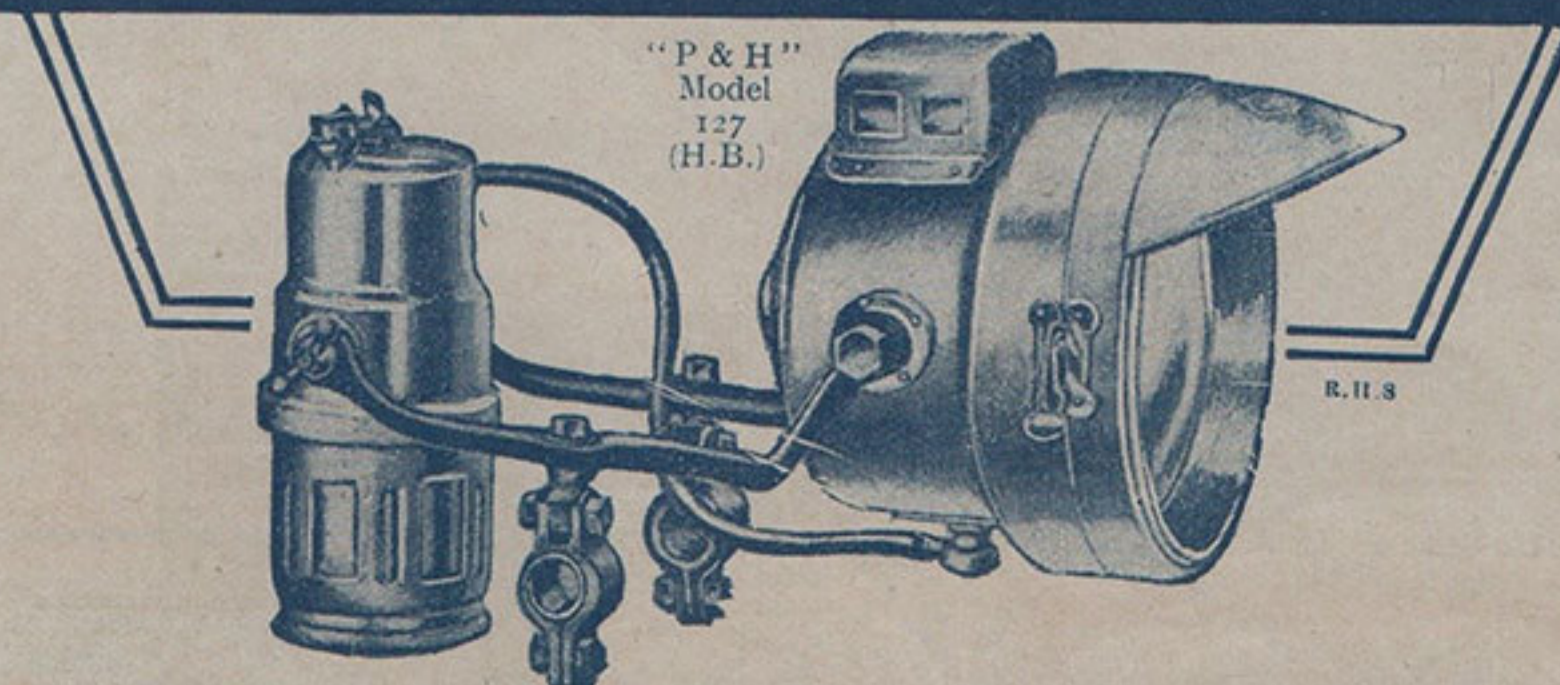
— and we and the world of riders know of no better surety for the continuance of the former on the darkest highway than the RELIABLE "P & H" Lamps.

With due attention on the rider's part, the "P & H" service NEVER "disappoints" — and, by its "BRITISH" Constructive Soundness throughout, entirely prevents the possibility of having to "walk home."

Note the popular "P & H" Projector Headlight Model 127 (H.B.), illustrated — a lamp ensured by expert tests after every manufacturing process to completely provide the Highly-Efficient Service demanded to-day. Also made for Handlebar attachment (127 S.B.).

Our descriptive Motor Cycle Lamp Booklet furnished free on request.

POWELL & HANMER, LTD., Chester Street, BIRMINGHAM.



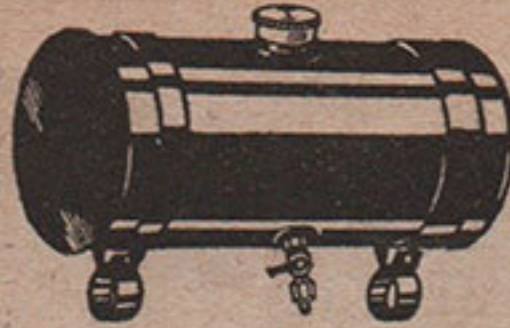
"P & H"
 Model
 127
 (H.B.)

R.H.S

In answering these advertisements it is desirable to mention "The Motor Cycle."



The 'COLLEGE' MUD SHIELDS.
In leather cloth .. 11/3
In solid leather ... 23/9



TANKS.

1/4 qt. size, as illustrated 4/3
1/2 gal. size .. 5/6
1 qt. size, best quality 6/9
1/2 gal. size .. 7/6
1/4 qt. size, to fit on down tube instead of top tube .. 6/-



ESTAB. 1876.
Old Jewry, Cheapside, London, E.C.
and at 255-257, HOLLOWAY RD., LONDON, N.
and at 8, NEW BRIDGE STREET, E.C.
and at 104, NEWGATE STREET, E.C.
Please address post orders to Old Jewry.

Phones
7712 Central.
1297 North.
3684 City.



LYCETT'S ARMOURD TOOLBAGS.

	Lock Fastening.	Strap Fastening.
7 1/2 x 3 1/2 x 3 1/2	4/6	3/11
8 x 4 1/2 x 3 1/2	4/9	4/3
9 1/2 x 5 x 3 1/2	6/6	5/11



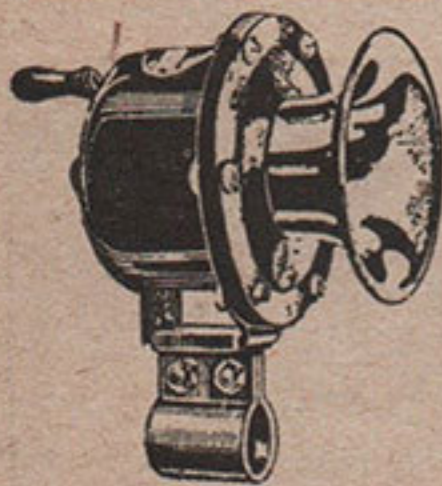
MOTOR CYCLE or AERO CAPS.
Leather, 4/9
Lined wool, 5/6

TYRES BELOW COST

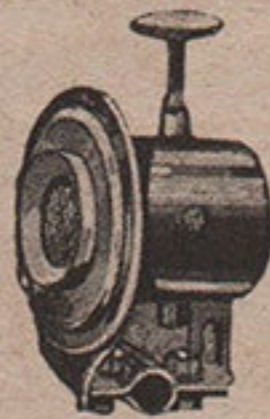
SPECIAL CLEARANCE LINES

AVON.	CLINCHER.	PEDLEY.	KEMPSHALL.	CONTINENTAL
26 x 2 1/2 Combination 38/-	26 x 2 1/2 Junior studded .. 11/6	26 x 2 1/2 to fit 2 1/2 ex. heavy 31/-	26 x 2 heavy anti-skid .. 17/-	26 x 2 1/2 standard .. 11/-
26 x 2 1/2 " .. 38/-	26 x 2 1/2 heavy studded .. 20/-	26 x 3 " 2 1/2 " 31/-	26 x 2 1/2 " .. 16/-	26 x 2 1/2 non-skid .. 14/-
26 x 3 to fit 2 1/2 " .. 40/-	26 x 2 1/2 ex heavy studded 27/-	26 x 3 " 65 " 34/-	28 x 3 " .. 17/-	26 x 2 1/2 " .. 14/-
	26 x 2 1/2 to fit 2 1/2 studded Dreadnought 35/-	28 x 3 American " 38/-	28 x 2 1/2 " .. 15/-	
	650 x 65 Combination ... 40/-			
	700 x 80 to fit 650 x 65 3-ribbed Dreadnought 40/-			
HUTCHINSON'S LIGHT CAR.	HUTCHINSON'S BROOKLANDS.	HUTCHINSON'S T.T.	HUTCHINSON'S PASSENGER.	
650 x 65 .. 25/-	26 x 1 1/2 ribbed .. 11/-	26 x 2 ribbed .. 15/-	26 x 2 ribbed .. 19/-	
Oversize to fit 650 x 65 .. 27/-	24 x 2 " .. 11/-	26 x 2 1/2 studded .. 16/-	26 x 2 1/2 studded .. 22/-	
	26 x 2 " .. 11/9	26 x 2 " .. 17/-	26 x 2 " .. 24/-	
	26 x 2 studded .. 12/6	26 x 2 1/2 ribbed .. 17/-	26 x 2 1/2 " .. 24/-	
	26 x 2 1/2 " .. 13/6		26 x 3 " .. 24/-	
	28 x 2 1/2 ribbed .. 12/6		28 x 2 1/2 ribbed .. 20/-	

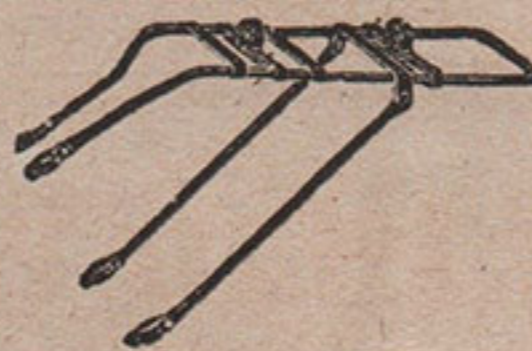
PLEASE NOTE.— All above covers are either slightly shopsoiled or special clearance lines—practically as good as full priced perfect covers.



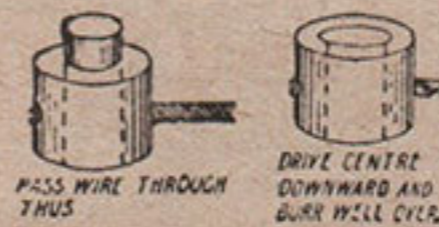
The 'TRIUMPH' MECHANICAL HORN
25/-
Guaranteed 10 years.



The 'GLORIAPHONE' MECHANICAL HORN.
19/6.



TUBULAR BACK CARRIERS.
Less straps .. 3/9
With straps .. 4/6



GRIPPLES.

For fastening ends of wires. No soldering.
3d.



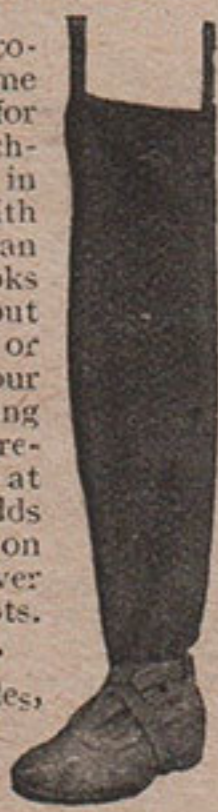
MAGNETO HANDLE-BAR CUT-OUT or SWITCH.
1/3



Special set of SPANNERS, TYRE LEVER, and SCREWDRIVER. 10d.

The "GROSE" MOTOR CYCLING BOOT WADERS.

This style of protection has become very popular for motor cycling, fishing, and lately in the trenches. With these on you can wade across brooks and fords without getting the feet or legs wet. Note our special strap fixing at foot, which prevents sagging at heel, and holds wader tight on foot. Worn over the ordinary boots.
Per pair 15/6.



With leather soles, 22/6.

TOOL ROLLS.

Canvas .. 6d.
" best .. 1/-
Leather .. 1/4
" superior 1/11 and 2/6
Complete with 10 useful motor cyclists' tools ... 7/6

The "BROOKLANDS" SUIT.



Full length jacket, double-breasted, double-texture olive-fawn water-proof twill. All seams sewn and taped. Sleeves with outside straps and inside expanding wind shields. High storm collar. Dust, wind, and rainproof. With well-shaped Leggings to match .. 24/-

Or with Seatless Trousers 27/-
Tweed Waterproof Leggings .. pair 6/6
Twill ditto .. pair 8/9
Heavy Twill Fawn Waterproof Seatless Trousers pair 12/11
Heavy Twill Fawn Waterproof Trousers ... pair 14/-
Twill Fawn Waterproof Caps .. each 2/9



RUBBER GOGGLES.

As illustrated .. pair 9d.
Superior quality .. 1/3
Best quality .. 1/9



Very Comfortable GOGGLES.

Chenille edges, and shaped to fit face. Pair 1/3.



Large Pear-shape Glass GOGGLES.

Collapsible sides, chenille bound, in strong case. Pair 2/-

GLOVES.

Cape leather, with long gauntlet .. 3/9
Cape leather, superior ... 4/3
Cape leather, lined .. 4/9
Black extra strong leather, with long gauntlet 4/6
Special line. Tan extra strong leather, lined, and with long gauntlet .. 5/6
The "TRANSPORT," as supplied to the Government, extra warm and strong. } 5/6
With long gauntlet .. 7/6
Try a pair. Cash returned if not satisfactory.

MOTORCYCLE or AERO CAPS, with Ear Rolls.

In navy twill .. 1/6
In fawn waterproof .. 1/11
In leather .. 4/9
In leather, fleece lined .. 5/6
In felt .. 1/-

ALUMINIUM MATTING.

9in. wide .. per ft. 1/3
12in. wide .. " 1/6
Rubber .. per lb. 1/8

ENGINE VALVES.

To suit most motor cycle engines .. each 2/9

VALVE TAPPET ADJUSTERS

The "Grose" .. each 1d.
doz. 9d.
" Forward," set of 6 sizes, 6d.

RIMS.

Sizes 26 x 2, 26 x 2 1/2, 26 x 2 1/2, 650 x 65 mm.
In bright finish .. 3/9
In plated finish .. 4/3

SIDECAR SUNDRIES.

Body Plates and Bolts each 3d.
Chassis U Bolts & Nuts .. 7d.
Aprons, brown duck .. 4/9
" " " .. 6/6
" " " large storm .. 8/6
Auxiliary Arms .. 6/3
Quick-detachable Clips .. 2/6
Carriers, folding .. 6/3
Brass Turn Buttons and Washers .. each 3d.
Ditto ditto per doz. 2/6
Canopy Press Buttons, cloth to cloth or cloth to wood .. each 3d.
Ditto ditto per doz 2/6
Wind Screens, short patt. 18/6
" " large patt. 24/-
Hoods, easily fitted to any sidecar .. 35/-, 37/6, 42/-

TRANSFER NUMBERS.

To Transfer on .. per doz. 9d

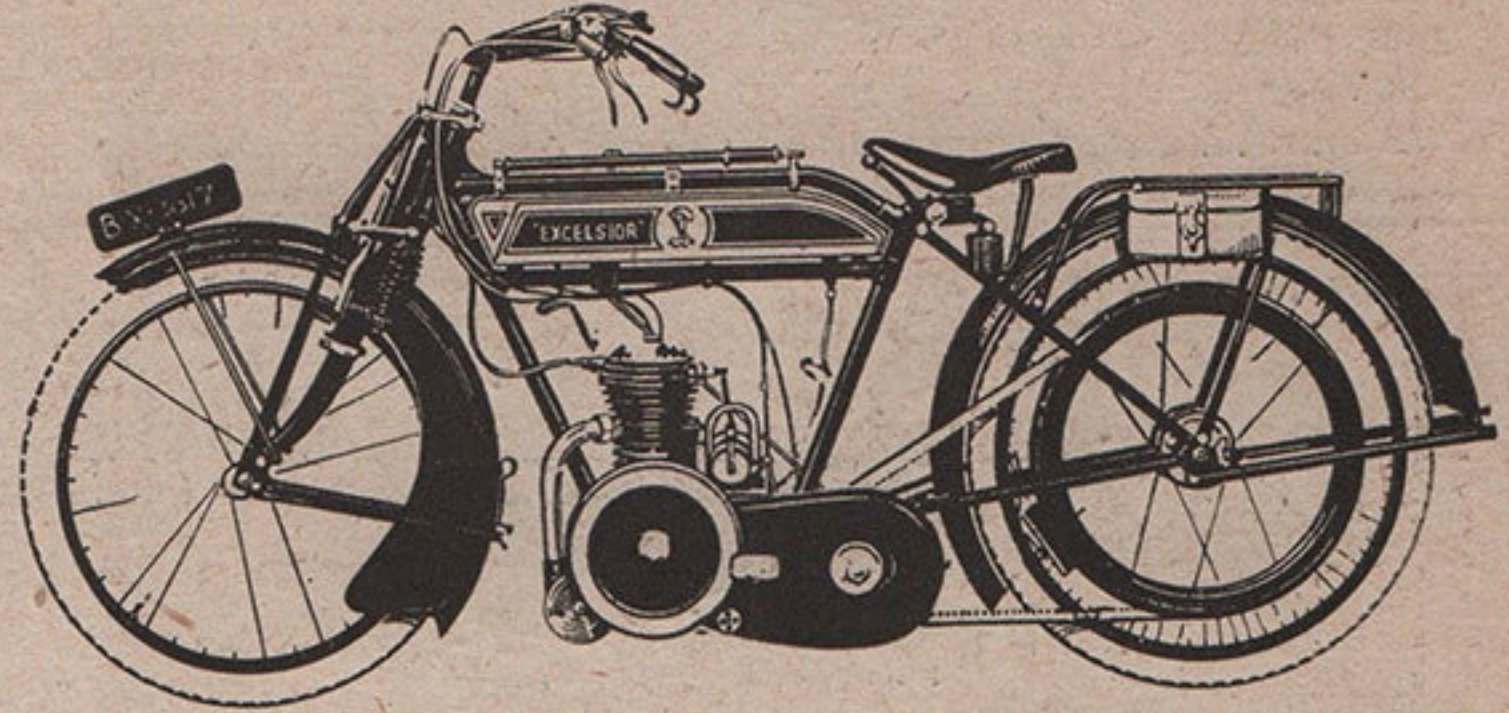
In answering this advertisement it is desirable to mention "The Motor Cycle."

The British

EXCELSIOR

The Ideal Machine for Town or Country

THE Ideal Machine for either Town or Country is the thoroughly British "Excelsior" Two-stroke $2\frac{3}{4}$ h.p. It is simple in construction and very easy to control. Solidly built, and as reliable as it is possible for a Light-weight to be. Above all, it is very inexpensive to run.



Price, Two-speed Model, $2\frac{3}{4}$ h.p. (as illustrated) - - £44:2:0
 Single Speed, $2\frac{1}{4}$ h.p. - - - - - £32:10:0
 Two-speed, Two-stroke, $2\frac{1}{4}$ h.p. (no Clutch) £39: 5:0

Bayliss, Thomas & Co., Excelsior Works, Coventry.
 Founded 1874.

Sole London Agents: H. Taylor & Co., Ltd., Store Street, W.C.

Godbolds

"Bowden"

Suppliers to H.M. and Allied Gov'ts.

The VALUE of "Efficient Control Fittings" is now-a-days particularly emphasized wherever SAFETY a-wheel is the rider's constant experience, and this is largely due to a wise selection from the

"BOWDEN"

Brakes, Controls, Wires, etc.

Our concentrated efforts to produce the PERFECT articles—always improving to meet every fresh emergency—has earned the unequalled "BOWDEN, Tyseley" repute which prompts this preference.

The Bowden Catalogue is free on request.

Bowden Brake Co., Ltd.,
TYSELEY, Birmingham.

Largest Brake Manufacturers in the World.

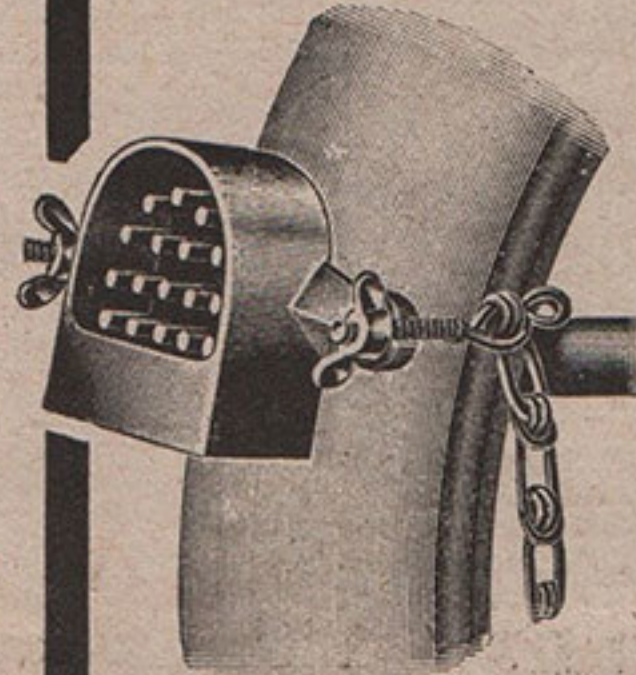
Tyseley

11 pence saved on every puncture.

You have to pay at least 1/- to get a tyre repaired professionally, whereas if you used a Simms Vulcaniser you could repair the worst burst or puncture for a penny, and the best of it is your repair would be quite as good as that of the tyre makers.

Simms Vulcaniser

is automatic, skill is not required. Ask your dealer to show you a Simms.



Price, will repair cover or tube in 20 mins. . . . 24/-
 Smaller size for inner tubes only 15/-

SIMMS MOTOR UNITS, LTD.,
 PERCY BUILDINGS
 GRESSE ST.,
 RATHBONE PLACE,
 LONDON, W.

HARLEY-DAVIDSON
1917

5 m.p.h. or 50 m.p.h., it's all the same — the wonderful engine will keep turning over just as sweetly and evenly — all day and every day without a falter

74 Newman St
LONDON W

The
MOTORCYCLE MAGNIFICENT

WHITELEYS

WILL SUPPLY YOU WITH

ANY MAKE OF MOTOR CYCLE BY EASY PAYMENTS.

Delivery on Payment of £5 to £10 Deposit
2% only added to List Prices for a year's credit.

Should you select a **CALTHORPE J.** two-speed (cash price, 38 guineas) you pay 16/- extra only. The machine is delivered after payment of £8, to be followed by 12 monthly payments of £2 14s. 6d.

In **STOCK** as we go to press:

SOLO MACHINES.		£	s.	d.
4½ h.p. No. 6 JAMES , 3-speed		69	10	0
3½ h.p. JAMES , twin		69	10	0
2½ h.p. ALLON , 2-stroke, 2-speed		44	2	0
2½ h.p. ALLON , 2-stroke		37	16	0
2½ h.p. CALTHORPE-J.A.P. , 2-speed, variable ignition		39	18	0
2½ h.p. ROYAL RUBY , two-stroke		32	0	0
2½ h.p. ROYAL RUBY , 2-stroke, 2-speed		36	10	0
2½ h.p. CALTHORPE , 2-stroke, 2-speed		32	11	0
2½ h.p. NEW IMPERIAL , 2-speed, variable ignition		40	19	0
2½ h.p. NEW IMPERIAL , 2-speed, clutch and kick start		48	6	0
2½ h.p. NEW IMPERIAL , 2-speed, clutch and kick start, lady's model		50	8	0
2½ h.p. LEVIS Popular		32	0	0
2½ h.p. JAMES , 2-stroke, 2-speed		42	0	0
2½ h.p. IXION , 2-stroke, 2-speed		35	10	0
2½ h.p. IXION , single-speed		29	10	0

Sole London Agents for the **IXION MOTOR CYCLES.**

COMBINATIONS.		£	s.	d.
4½ h.p. JAMES Combination		86	6	0
6 h.p. ENFIELD Combination		94	10	0
4 h.p. CALTHORPE-J.A.P. Twin Lightweight Combination, Enfield 2-speed gear, handle starter		73	10	0
4½ h.p. JAMES Combination, with Lucas dynamo lighting and electric horn		102	18	0
3½ h.p. ARIEL Combination		82	10	0

SECOND-HAND COMBINATIONS.

7-9 h.p. 16F HARLEY-DAVIDSON , special H.-D. Sidecar, perfect	92	10	0
4½ h.p. QUADRANT , 1916, second-hand, but as new	65	0	0
6 h.p. ENFIELD 1916 Combination, all accessories and wind-screen to sidecar, speedometer, done 2,000 miles only, practically as new	85	0	0

PACKING FREE. CARRIAGE PAID TO ANY ADDRESS IN THE U.K.

T.D.C. DE LUXE MOTOR CYCLES, B.S.A., and ROVERS, supplied by deferred payments on special terms—particulars on application.

West End Agents for the famous **JAMES** Motor Cycles.

Wm. WHITELEY, Ltd., QUEEN'S ROAD, LONDON, W.

In answering these advertisements it is desirable to mention "The Motor Cycle."

A.J.S.

WEATHER—proofedness.

Comprehensive provision for ALL-WEATHER conditions — the benefits from which being outstandingly important during the current season — is a luxury realised to the full by the A.J.S. owner. This is due to carefully-considered design in general, and, in particular, to the famous A.J.S. ORIGINAL ALL-ENCASED WEATHERPROOF CHAIN TRANSMISSION — affording complete immunity from friction in the working parts. The effect of this is to ensure no loss of power — and as equally good running as in fine weather.

Is your name on our "WAITING LIST?"

A. J. STEVENS & Co. (1914), Ltd., WOLVERHAMPTON

London Agents: H. TAYLOR & Co., Ltd., Store St.
Tottenham Court Rd.

Motor Cycles

WINNER 1914 JUNIOR T. T. RACE

AUTO-CYCLE UNION

PROTECTION, ADVICE, INSURANCE, CONVENIENCE, ECONOMY.

Illustrated Booklet post free on application to—

Secretary, Auto-Cycle Union, Royal Automobile Club Buildings, Pall Mall, London, S.W.

"SPOTS"
GIVE
EASY STARTING
IN WINTER

"SPOTS"
INCREASE
SPEED
(If Required)

25 TABLETS 2/6 • 50 TABLETS 4/-
(POSTAGE 3d EXTRA) (POSTAGE 4d EXTRA)
THE
COAL BY-PRODUCTS
COMPANY,
MANUFACTURING CHEMISTS AND DRUGGISTS,
40 HOLBORN HOUSE, HOLBORN, W.C.

"SPOTS"
"GINGER"
PETROL
SUBSTITUTES

"SPOTS"
BRIGHTEN
OIL
LAMPS

FERODO

LININGS FOR ANY TYPE OF BRAKE OR CLUTCH.

THE HERBERT FROOD COMPANY, LIMITED.

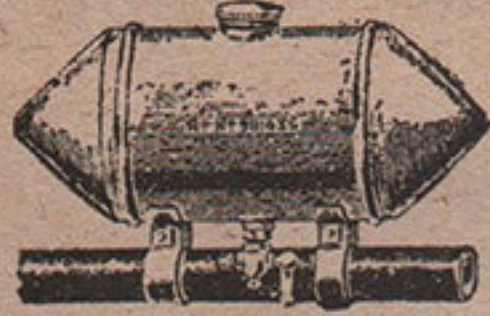
Phones—19 and 20. Works—CHAPEL-EN-LE-FRITH Wires—"Friction."

We hold Stocks at London, Birmingham, Belfast, Bristol, Cardiff, Edinburgh, Glasgow, Liverpool, Manchester, and Newcastle.

GAMAGES

FOR EVERYTHING FOR THE MOTOR CYCLIST.

SPARE PETROL TANKS

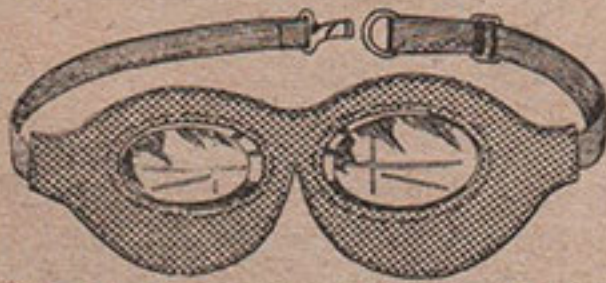


As illustrated, with Clips.
 Quart, 9in. x 3 1/2in. .. 7/6
 1/2 Gall., 14in. x 4in. .. 10/6
 Enamelled Aluminium.



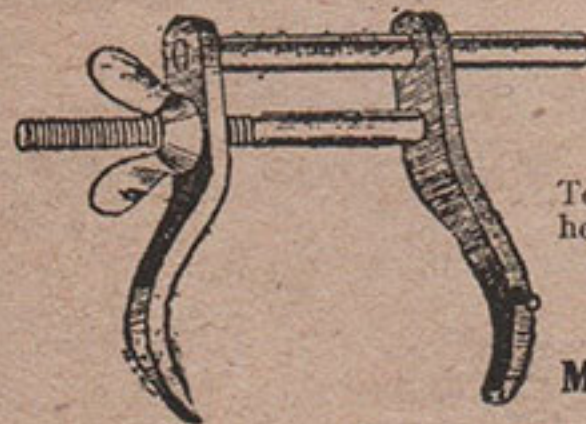
The Gamage Motor Cycle Chain Rivet Extractor.
 Price 2/6.
 Post free.
 Very powerful
 Simple to use.

SPECIAL UNBREAKABLE MOTOR GOGGLES.



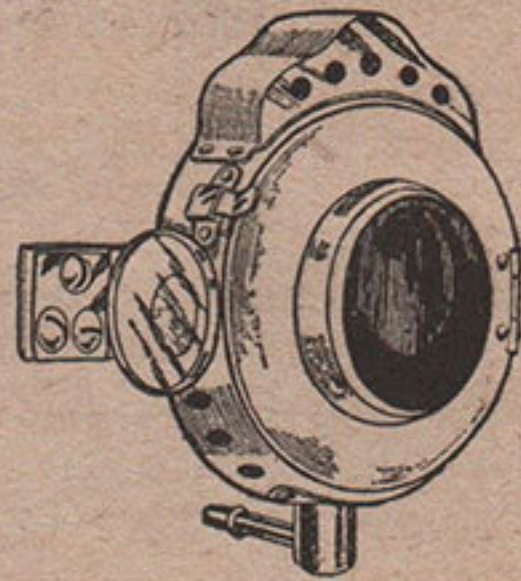
These goggles are made of metal with specially cut slits to give a perfect vision. They are unbreakable and not affected by rain. The best goggle for despatch riders. 2/9 per pair.

MOTOR CYCLE CHAIN PULLER with FLY NUT.



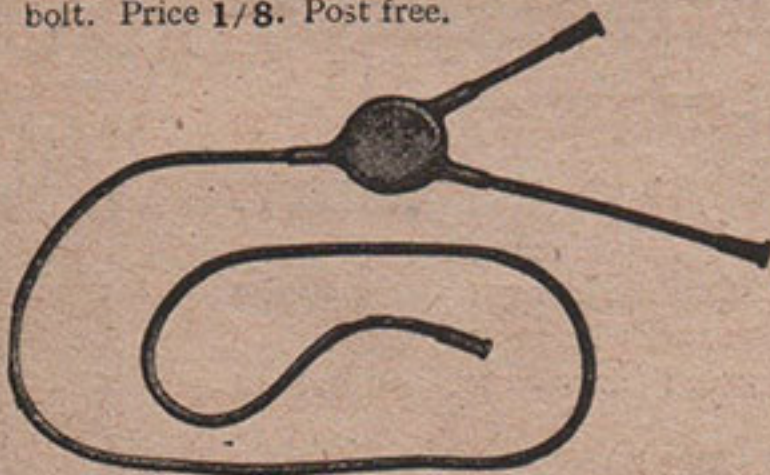
By the use of this small tool it is an easy matter to replace a chain bolt. Price 1/8. Post free.

THE "MONTI" REAR LAMP.



To work in conjunction with head lamp generator.
 Price 3/9 post free.

MOTOR CYCLE HEAD AND REAR LAMP CONNECTION.

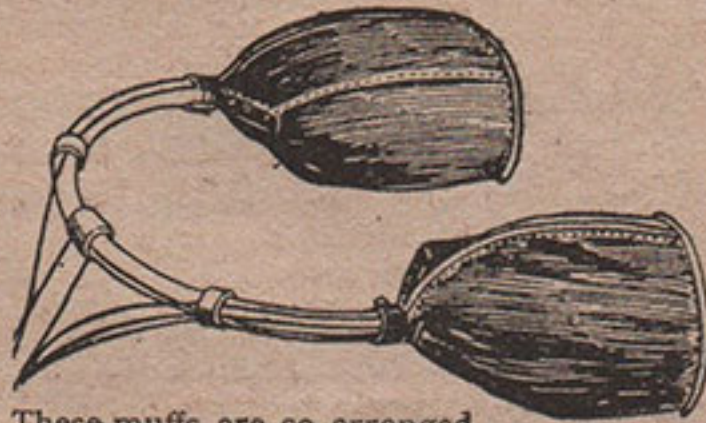


Fitted with Gas Bag to ensure even pressure of gas at both burners of head and tail lamps.
 Price 4/-. post free.

MOTOR CYCLE HANDLE-BAR MUFFS.

Great comfort to winter riders. Best quality Brown Leather, 27/6 per pair. Post free.

Black waterproof, 15/6. Cheaper quality, 9/6. Khaki waterproof, 10/6.



These muffs are so arranged as to give perfect freedom for manipulating the levers on handle-bar.

HOLBORN, LONDON, E.C.



H. M. S. "Ceto"
 c/o G. P. O.
 London
 October 10th 1916

Gentlemen,
 It may interest you to know that in September 1913 I bought a 9.5 Standard light car, and it was fitted with 4 Sphinx Sparking Plug Pattern B11.

The car has run just over (ten thousand) 10,000 miles, driven only by myself. I have never experienced any "missing" on any occasion, the same 4 plugs are still in use, and have been used continuously. I have not even got a spare plug so completely do I rely on these original 4.

A mechanic inspected them today and says that they are all 4 in perfect condition.

You are at liberty to make any use you like of this gratuitous testimonial.

Yrs. faithfully
 H. H. Bouyhey

THE SPHINX MFG CO BIRMINGHAM.



Model 91.
Seat size:
13½" x 13½"

To give greater comfort for the rider a wheel, and to ensure freedom from saddle trouble, is the object of the

EMPIRE-DE-LUXE

— and that it achieves its object is evidenced by the ever-increasing number of EMPIRE-DE-LUXE users, who acclaim it as THE saddle for comfort and reliability.

Are you using an EMPIRE-DE-LUXE? If not, have one fitted to your machine — you'll appreciate the increased comfort it affords. Ask for Catalogue of "The Leatheries Products."

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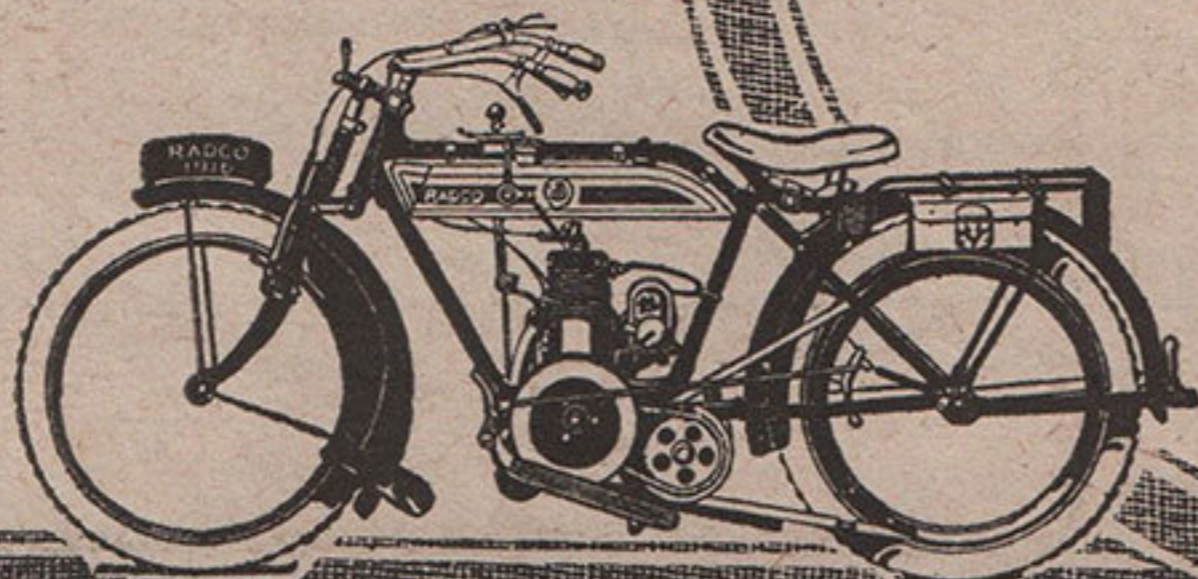
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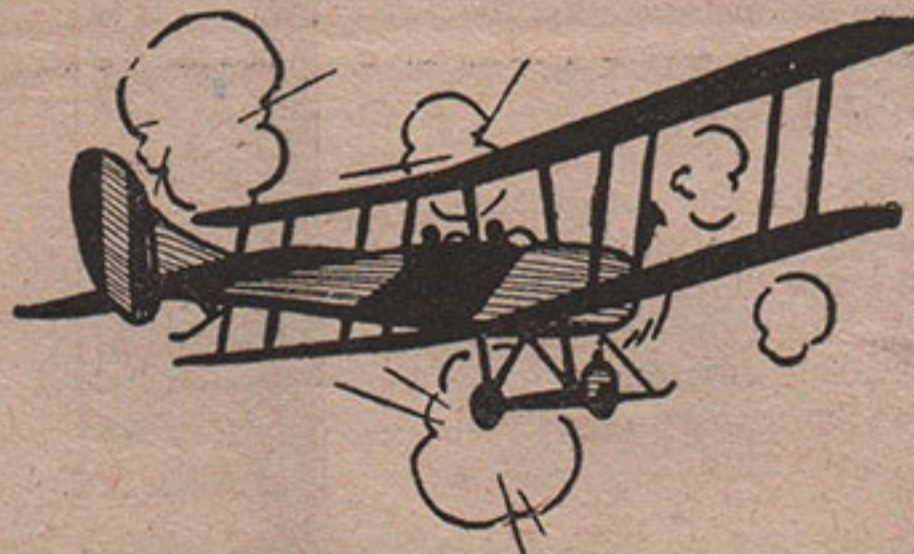
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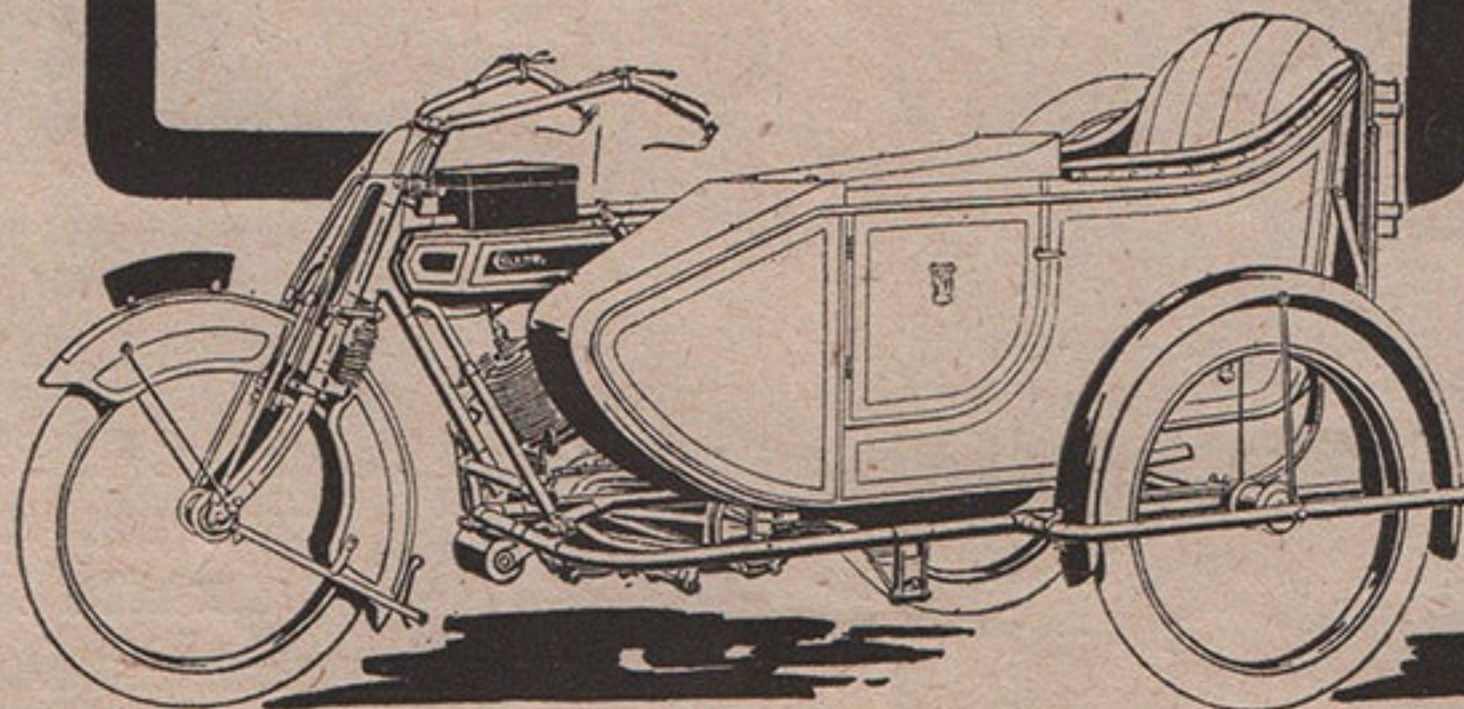
machines is required for War Service, therefore ordinary needs cannot be met.

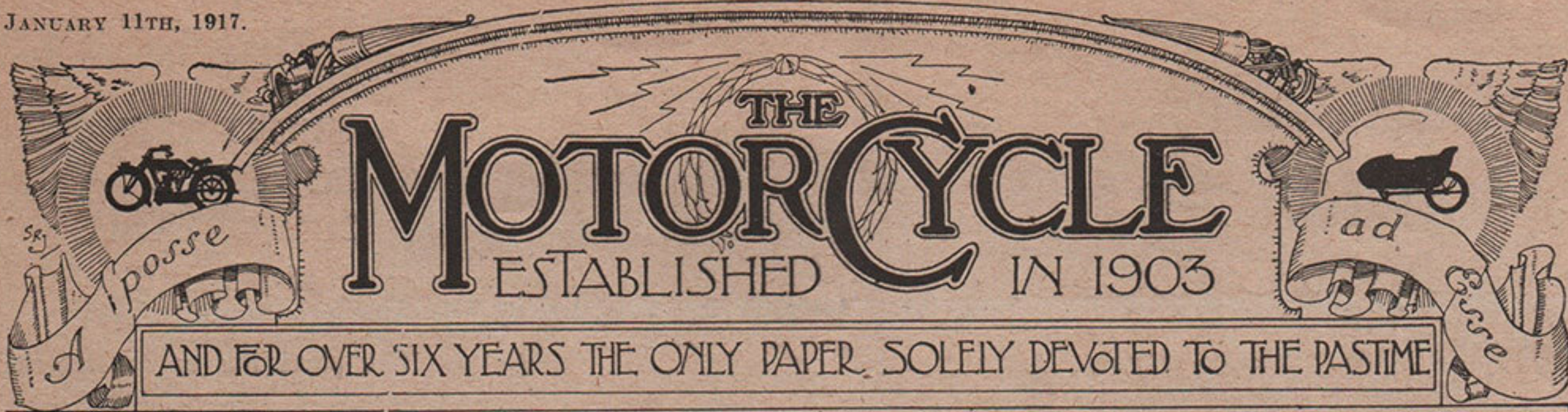
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THE MOTORCYCLE

ESTABLISHED IN 1903

AND FOR OVER SIX YEARS THE ONLY PAPER SOLELY DEVOTED TO THE PASTIME

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Eliminating Weaknesses.

IN the early part of 1915 we ventured the suggestion that experts in motor cycle matters should be appointed by the Government to study the conditions under which motor cycles are used at the Front, and to make recommendations to manufacturers engaged entirely upon the production of war models. The object in view was, of course, the perfection of design by the elimination of weak points. It is common knowledge that certain details of design (we can fairly include all motor cycles in use at the Front) were entirely satisfactory when used under conditions obtaining in these Isles, but quite naturally perhaps were found to be lacking in strength or efficiency under the arduous conditions of war service. To particularise, we refer to frames, hub design, gears, the important question of mudguarding, spring forks and such like. Engines in isolated cases have not proved all they might be, and sidecars, too, have been found to be wanting in design. From accounts we receive from men at the Front who are competent to judge, certain troubles are still regularly experienced with specific makes of machines. These failures have been recurring for over eighteen months—in some cases over two years—are well-known to the men who handle the machines, and should be better known to the makers. When known and properly sifted, the manufacturers should be officially asked to heed the complaints. What is wanted, it seems to us, are experts who know the difficulties of the conditions to make periodic visits to the war zones and to confer with officers in charge of motor cyclist sections and repair bases—most of whom hold strong views—and then to return and advise manufacturers as to desirable changes or amendments in design. We believe this plan is adopted by the Royal Flying Corps in connection with aeroplane engines. A year ago we urged such a scheme of communication; later manufacturers' representatives visited the French front, but a solitary visit is not enough in the case of a motor

vehicle. Besides, the weather and road conditions are so constantly changing.

It took many months of constant requisitioning before a suitably shaped handle-bar was standardised for our D.R.'s Overseas. The long touring bars often fitted led to many falls until riders themselves bent their bars to a suitable shape. We know an instance where hubs gave endless trouble for months and caused workshop mechanics much work, before the manufacturer even knew that this part required any attention. When *The Motor Cycle* drew his attention to the matter an improved design was produced.

Another point in connection with military models is that different standards of finish are permitted; in one case machines are finished entirely in khaki, not a tiny plated part being permitted; in another instance the firm is allowed to deliver its standard products, all the parts being plated in the manner they would be for display in an agent's window: in still another instance the machines are all black. Now assuming that the question of colour finish is of minor importance—and we are not so convinced of that, seeing that motor cycles in war service have continually to be left exposed to the weather all night, and also must perforce be ready for use in all weathers, thus calling for the closest study in finishing processes to ward off rust and damp—some standard should surely be set by the authorities; either plating is of advantage or it is not of advantage. Personally, we should have imagined that in the summer months plated parts glinting in the sun would be of some guide to the enemy. We have heard it argued that rust is much less likely to attack parts of a machines which have been plated and subsequently neglected, and we are open to accept this view, but from the few remarks which we have made and which we could continue if it were necessary further to illustrate our point, it is clear that there is still some confusion in the production of the different patterns of war motor cycles.

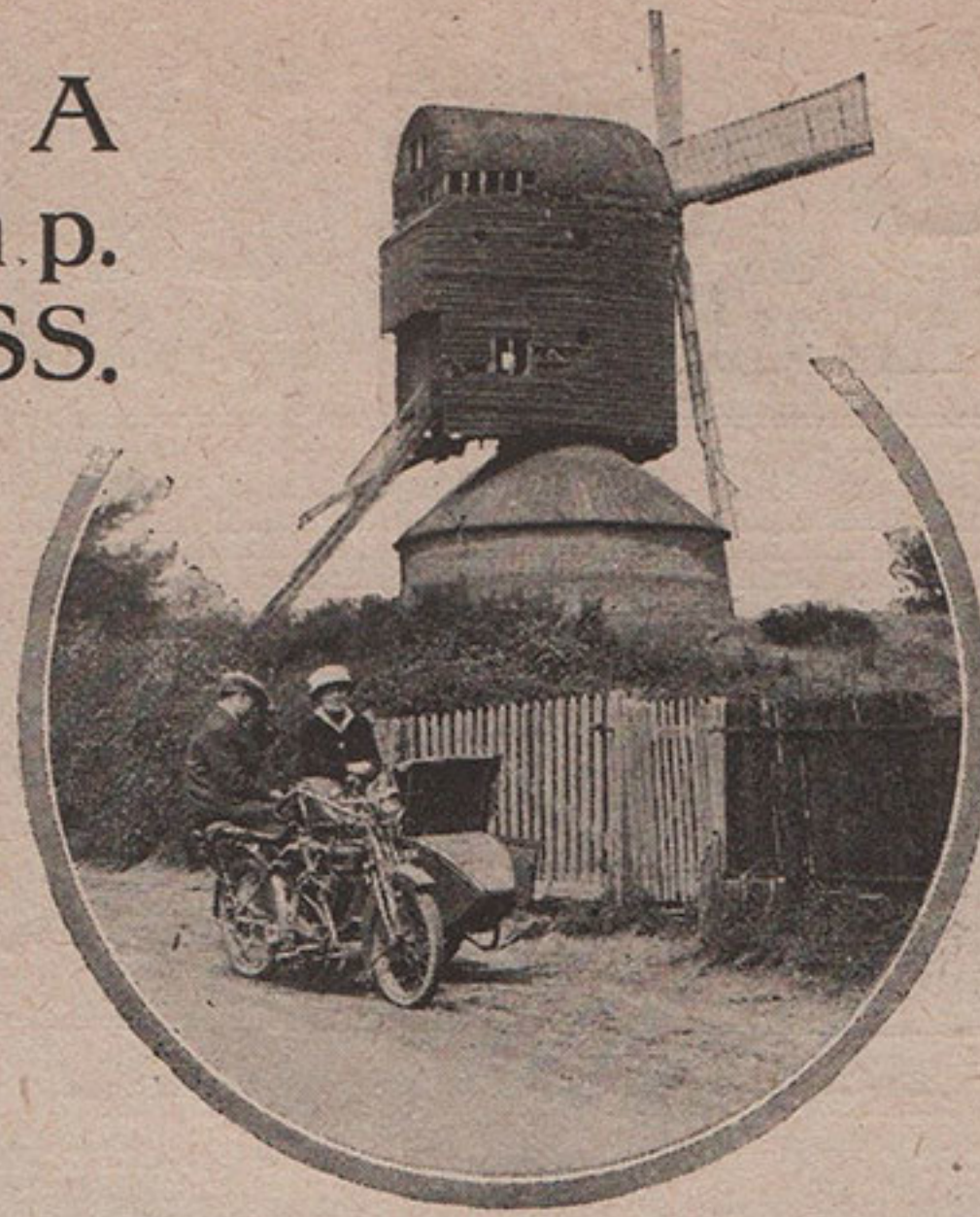
A RUN ON A 1916 7-9 h.p. MATCHLESS.

THIS machine was no manufacturer's specially tuned demonstration model, but a hard-worked hack belonging to a friend, which had had a season's wear. It was a fine autumn day, and as our course lay in the teeth of a south-westerly gale the engine was hard put to it for forty miles, but behaved splendidly. It would have done better had not the clutch been over-lubricated: this was caused by the relief pipe from the crank case throwing too much oil on to the chains and clutch—a fault which could have been easily remedied by closing the pipe a little. Despite this slight inconvenience the machine travelled extremely well and good time was made.

Some Facts about the Engine.

The M.A.G. engine with which this outfit is equipped deserves the highest praise. It was not extraordinarily fast, but was a good puller, capable of a high average speed without making the slightest fuss, and totally devoid of all clatter and valve noises which are far too prevalent in many motor cycle engines. At 20 m.p.h. it was inaudible, and at higher speeds practically so, while the exhaust was quiet, though in no way throttled unduly. In short, the machine was one which a considerate driver would rejoice to use. Few people know how to remove the inlet valves of an M.A.G. engine. After the inlet dome has been removed the valve, if the motor has been run a long time since last taken down, will be found so firmly fixed as to be apparently immovable. If an attempt be made to lever the valve complete out of its seating the cage will probably be irretrievably damaged. The process of removal is simplicity itself when once the procedure has been explained. Having taken away the exhaust spring the stem of the exhaust valve should be lifted until the head is found to be touching the inlet; next a nut or anything which will form a suitable distance-piece should be inserted between the bottom of the exhaust valve stem and the tappet, and the engine should be rotated, when the exhaust valve will push the inlet out.

A.T.O.



The Matchless halts beside an old windmill. These picturesque landmarks are rapidly falling into disuse, and the little country miller may in a few years cease to be.

A SHORT TRIP ON A POWERFUL AND COMFORTABLE MACHINE.

The particular engine referred to is fed with gas by an ordinary two-lever Amac carburetter, which is absolutely and entirely automatic. The air lever is permanently closed and is only moved to stop the engine. Occasionally, on very warm days, the engine can be persuaded to take a little air when travelling fast, but this is a very rare occurrence. This setting of the carburetter has been brought about by two factors—the fitting of the smallest jet the engine would take, and the extraordinary accuracy of the workmanship of the engine generally, which renders all joints perfectly gas and airtight. Of course,

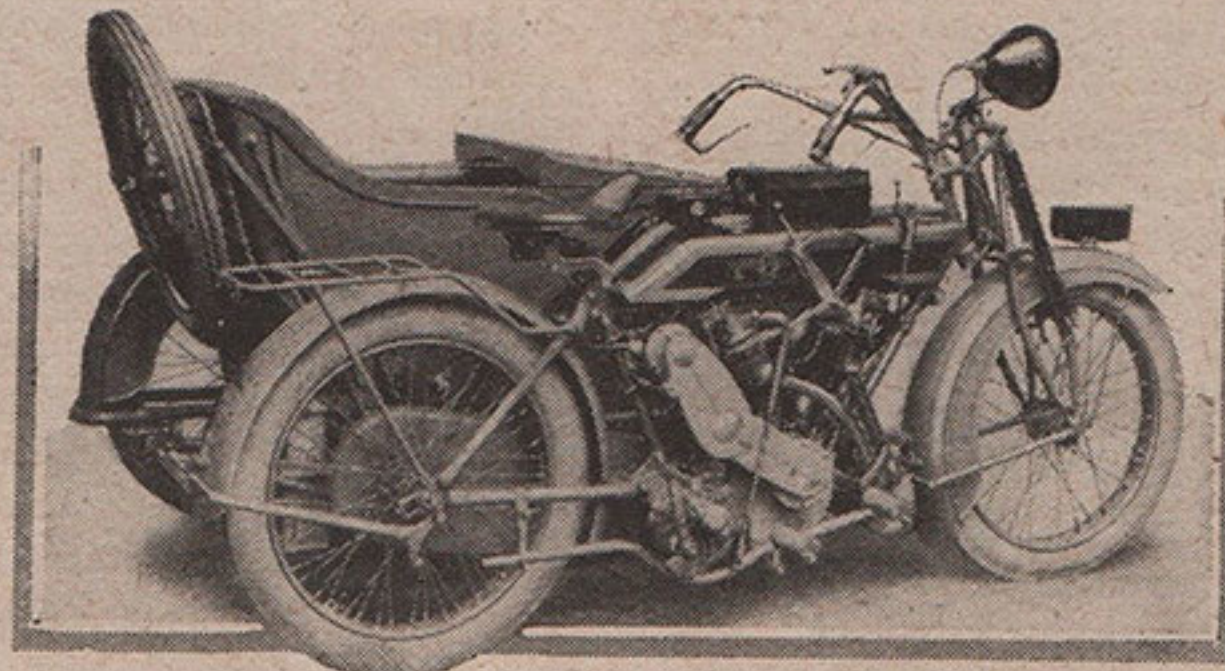
nowadays many two-lever carburetters are, to all intents and purposes, automatic in action, but the air lever is kept open instead of closed as in the instance mentioned above.

Mechanical Details.

To return to the machine in general; the change-speed was excellent and the clutch sweet in action, but the method of the control of the latter would have been better appreciated had the actuation been by a simple pedal similar to that working the brake and placed on the opposite footrest to that on which the brake control is situated. The other criticism is touching the handle-bars, which in the writer's opinion might be a trifle wider. Notwithstanding this fact the combination steered remarkably well, and even in unaccustomed hands proved a real pleasure to drive in traffic on account of the controllability of the engine and the excellence of the brakes.

The sidecar, the wheel of which is sprung, was luxuriously comfortable, and altogether the machine is one calculated to satisfy the most critical expert.

Our return journey was made with the gale in our favour. Despite the fact that good time was made on the open stretches of road the throttle was only opened on hills. In the meantime, however, the new Matchless flat twin claims first attention, and when the factory of Messrs. Collier and Sons at Plumstead resumes its normal state the Matchless sidecar promises to become increasingly popular.



A 1916 Matchless combination equipped with electric lighting set and interchangeable spare wheel. The engine is a 7 h.p. M.A.G.



Acceleration.

I HAVE never—short of a big racing car—tasted such fiendish acceleration as a well-tuned four-cylinder motor cycle affords; it must be sampled to be believed. The response to the throttle is simply terrific, and the machine positively leaps away. By comparison the flat twin is certainly sluggish, unless it is geared rather low, or unless full advantage is taken of the gear box in snatching a jump. I do not think the flat twin is inferior to the vertical single in this respect, though some people say it is. At any rate, there are two features of value in acceleration—the first is its rate, the second is its smoothness. The four-cylinder has both. It gathers speed at immense velocity in a given distance, and it does so without rousing any sensation of effort. The flat twin accelerates less rapidly (at any rate, on equivalent gear ratios), but with almost equal smoothness. The vertical single accelerates less rapidly than a four-cylinder, and at about the same rate as the flat twin; but it labours very perceptibly under the process by comparison with the four and the twin alike; there is a sensation of hammering. In such comparisons it must be remembered that the 500 c.c. flat twin is a suckling compared to the four-cylinder or the vertical single; comparatively few designers have tackled this type of engine, and those who have can only claim a short acquaintance with its possibilities. I incline to believe that the flexibility, acceleration, and gear-accepting qualities of the larger flat twins will improve rapidly during the first few years after the war.

The Perfect Two-stroke Plug.

I AM still looking for a satisfactory sparking plug for the more exacting baby two-stroke engines. There are some engines which are not fastidious, though I am not good enough technician to know whether the cooler engines tolerate ordinary plugs chiefly by reason of low compression ratios or a port design which ensures good scavenging. For example, my baby Levis engine (to name one make) will work on almost any sort of plug; but I have owned others which rapidly overheat all ordinary plugs. The special Sphinx two-stroke plug is easily the best I have tried, but it will "incandesce" on a two-speeded baby up a long hill. The addition of the Fletcher cooling radiators enables it to resist the hottest baby engine I know; but you cannot use the Fletcher lower radiator (*i.e.*, that which replaces the ordinary s.p. washer and cools the butt of the plug and the outer electrode) unless a tube spanner is applicable, as the dished copper radiators prevent any other spanner from getting a grip. So I am still without a plug suitable for the hotter type, and equipped with a plug mounted vertically and centrally on the cylinder head; because there is no clearance to use a tube spanner and mount the auxiliary coolers on the Sphinx plug. I met a man using a Lodge racing plug on such an engine, which is

foolish. All baby two-strokes are naturally somewhat oily engines, and the Lodge racer, being designed to keep its points very cool, cannot burn oil off itself. The crux of designing a two-stroke plug lies in the fact that the electrodes must keep cool, and yet must not accumulate carbon.

Carrier Bags.

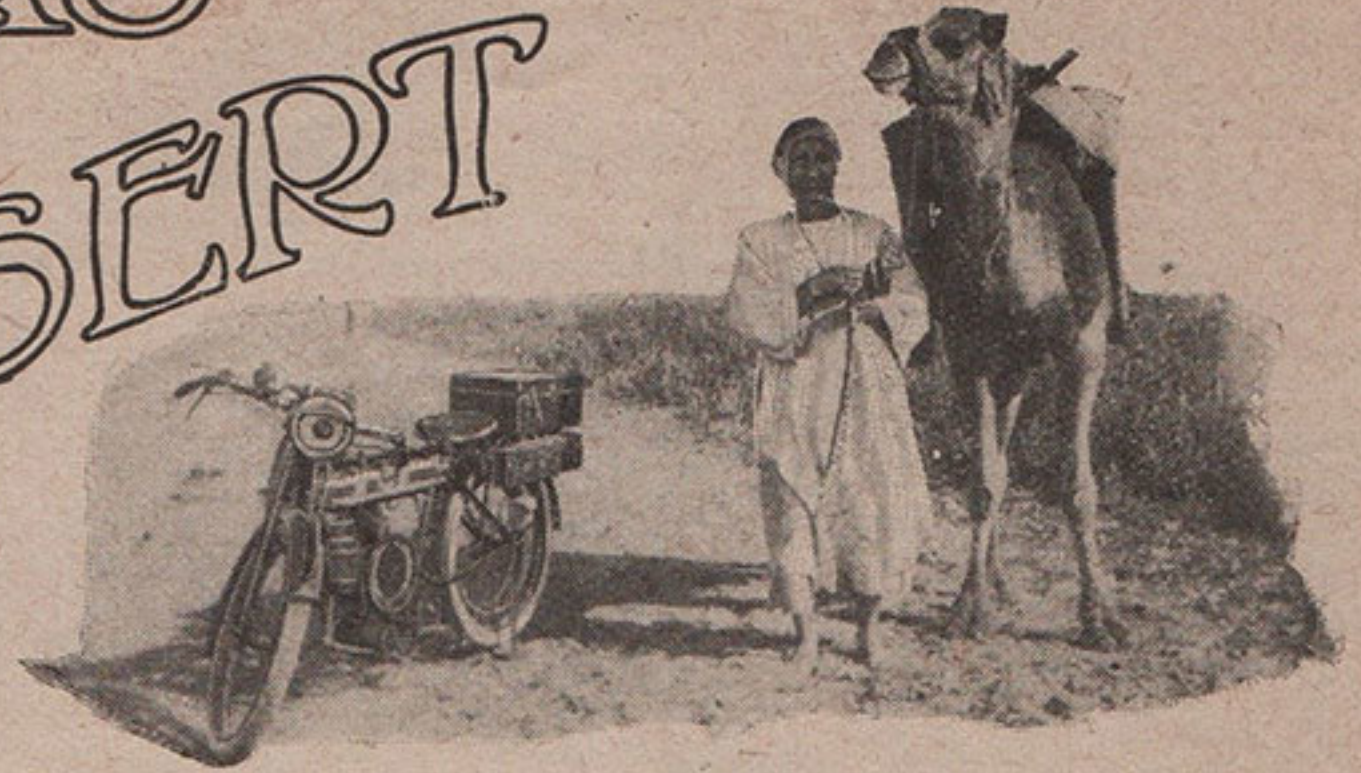
NOT long ago I appealed to the trade for a carrier case constructed on matchbox lines, and with its contents accessible by opening a single lock at the end. Messrs. J. B. Brooks and Co., whose experience is, of course, unrivalled, tell me that they used to make such a case, but that it did not sell. They further find that motor cyclists will not buy bags which depend purely upon a lock, but insist on having straps as well. Evidently I am not the only rider who (*a*) has left his key-ring at home, and gouged an expensive leather case open with a cold chisel, and (*b*) paid good money for a locked carrier case, and had the lock choke up with dust after a few touring trips. I was rather interested in the catalogue which accompanied the firm's letter. They make first-class little cases for any and every accessory; and they further list ingenious full and half leggings, attached over the trousers by spring clips, which are just the thing for doubtful weather, when one does not need waders or oilies.

"Some" Pluck.

A PARAGRAPH on an unusual subject for this paper. Who is the bravest living Englishman? No, no, no; spare me these war yarns. They show courage of a type, I admit; courage in comradeship, where thousands face a speedy death side by side; courage when the blood is up, and danger has shrunk to a commonplace. The courage I shall now retail is of a higher, sterner sort—courage in solitude, the manful facing of a lonely death in cold, deliberate blood. It is my often unhappy lot to test various contraptions forwarded to the office by inventors, some of them sane, others—! Last week I opened a bulky parcel addressed to "Ixion," and carefully unfolded a most imposing looking waterproof, built of most admirable cloth. It was obviously large, and as it unfolded, it seemed a trifle shapeless. The staff were called in to collaborate. At last the design was solved. It had a round hole, with rain-turning collar, through which one thrust one's head, poncho-wise; it covered not only one's person, but one's machine, and was attached thereto by numerous little straps and tapes and ribbons. It happened to be raining at the time, and the staff gleefully hauled me into the yard, perched me on my saddle, stuck my head through the hole, and strapped the abomination firmly down. I was as helpless as a trussed fowl. I could not think of anybody who would release me but my faithful wife, resident many miles away; so I manfully operated my kick-starter and rode home.

A DOUGLAS IN THE DESERT

Despatch Carrying in the Desert of Sinai



LITTLE did the section think when they were carrying out their training in England that their destination on active service would be the deserts of Sinai. Like most D.R.'s in training, we had pictured to ourselves the mud fields of Flanders as the scene of our operations. Our training, too, at Biggleswade and Houghton Regis certainly seemed to justify the belief that we were bound for France, for there we plunged recklessly through water splashes, pushed and coaxed our bicycles through ploughed fields, invented patent mud scrapers to prevent our mudguards clogging, and experimented with various devices for the protection of the front plug during deluges of rain. All apparently wasted, however. A signal company was required to accompany a certain division to the Sinai Peninsula, and we were the lucky D.R.'s chosen to support that signal company.

Our Destination.

Our arrival at the scene of operations was extremely depressing. The previous night we had entrained at a place some 150 miles away. The entraining process started at 7 p.m. and finished at 2 a.m. the next day. It is by no means child's play to get a signal company on to an Eastern train. First of all the mules have to be reckoned with. They seem to have a firmly-rooted objection to being led anywhere, and in particular they detest being packed ten deep in a cattle truck. So they kicked and reared and plunged, scattering confusion and disaster wherever they went. Having had previous experience of mules, we very wisely removed our "Dugs" to a far-distant corner of the yard and mounted guard over them. Eventually every mule was aboard, and kicking with might and main at the sides of the truck. Then cable carts, ration carts, tents, and baggage had to be manoeuvred into the train, and, finally, the men squeezed into the remaining corners. We had two large trucks reserved for us and our bicycles, and with their usual pride of race the D.R.'s rode up in perfect order and were on board in fifteen minutes. Then followed a sleepless night's ride, which was relieved by some of the boys trying to ride their bicycles round the narrow compass of the truck. I believe some of them could and would ride along a telegraph wire if no other road were available.

Eventually we stopped—a longer stop than any of the preceding ones—at a place apparently in mid-

desert. Astonishment could be read on every face. Was this the place we were destined for, this inhospitable waste of sand and scrub? Did they expect us to ride motor cycles over ground previously traversed only by camels. Many were the groans and curses uttered until someone suggested an alternative to motor cycles—mules. The one word was enough. Unanimously we decided that if it were humanly possible we would ride motor cycles over that desert.

The next morning we started work. Our signal office was a combination of dug-out and sand bag shelter, and we lined our Douglases up some 200 yards away in a neighbouring hollow, and screened them as far as possible from the prying eyes of aviators. Previous to going on duty we had scouted round and found a fairly hard camel track that seemed to link up, more or less, the various units of the division, but to reach this "road" we had to cross a belt of particularly loose sand, which was punctured here and there by pot-holes filled to the level of the surrounding ground with drifted sand. We had not long to wait for the first despatch. We gathered round to see what sort of a show No. 1 on the roster would put up. With a roar of the open exhaust the little Douglas went off, but soon the back wheel was describing snake-like movements in the treacherous sand. But the rider was our best man and not easily unsaddled. Now swinging from side to side in the loose sand, now thrown a foot or so in the air as his front wheel struck a hidden piece of rock, he made his way out to the track, and was soon bounding from bump to bump in top gear. That morning nearly everyone of us bit the sand in turn. It was a common sight to look out across the desert and see one of our D.R.'s lying in the sand and grabbing at the exhaust lever to stop the roar of the engine, which was probably racing on full throttle. But experience brings proficiency, and within a week we were all expert sand riders.

Riding Over Sleepers.

So far all was going well with us. We were evidently certain of being able to deliver all messages within the divisional area. The crucial test came when we had to take "urgents" to the Army Corps. Now there is no pretence at a road between the Division and the Army Corps at present. The only means of communication is the single railway line. Could we use this as our "road"? was the question everyone asked. At

A Douglas in the Desert.—

first glance it seemed well nigh impossible. The rail led straight through the desert, and there was no path or track on either side. Further, the sleepers protruded from two to six inches from the bed of flints on which the rails were laid. Nevertheless we were determined to attempt it. The first man who attempted it got through by a superhuman effort, and returned with every muscle in his body quivering from the awful pounding he had received. He described the journey as a choice between bumping from sleeper to sleeper on the track and sticking fast in the loose drift sand by the side of the track. No wonder that after riding there and back, a distance of twenty-eight miles, he was completely exhausted. Still, determined not to be beaten, we surveyed the track and mapped it out. You could ride for a certain distance between the rails, then take to desert and strike well out, when you would find a fairly hard stretch of sand; return again to the rails farther up for about three miles, and then strike out again on the opposite side of the track. When within about four miles from the corps headquarters one came across a camel track and followed that till it developed into a hard road leading straight into the camp. The initial attempts were naturally hard on the machine as well as on the rider. The frames of two machines were broken close to the head, footrests were swept away by rocks and railway lines, tanks sprung mysterious leaks, and tyre burst wholesale, but, on the whole, the bicycles stood up to their most arduous test splendidly. Probably all the journeys could have been done quicker and with more comfort to ourselves with a higher powered bicycle fitted with kick starter and clutch, but as these were then unob-

tainable we had to make the best of our little Douglasses.

Frequent Overhauls.

There is one very curious effect that active service has on a D.R. In England he cordially dislikes cleaning his bicycle, and only does very necessary repairs and overhauls. But on active service, when he knows that his own life and often that of hundreds of others depends on his efficiency, you will find him constantly overhauling, repairing, and cleaning. It is no exaggeration to say that the D.R.'s motor cycle receives equally as much care and attention on active service as do the horses and mules; and anyone who has been on active service will know that this is saying a great deal.

With regard to the life, I can only say that no one in our section regrets being sent here now. The food is extremely good, and we D.R.'s do ourselves very well after one of our number has been up to the Army Corps. He always returns with his pannier loaded with vegetables, tinned fruit, chocolate, and cigarettes. Generally these arrive in good condition, for experience has taught us how to pack the things up well.

In conclusion, I must not forget to pay a tribute to *The Motor Cycle*. Of all papers it is the most eagerly sought after, and I can honestly say it is read from cover to cover. We are especially interested in the Military Section and in the various articles which from time to time appear on recent developments in motor cycling. No one is more eager than the D.R.'s to return to dear old Blighty, but not

"Till the hurly-burly's done,
Till the battle's lost and won."

H. W. GILBERT (Cpl.)

—•••—

The Use of a Shifting Spanner.

GOOD kit is very often spoiled by thoughtless or careless handling, and the brand of the beginner is generally to be found on the keys and spanners contained in his tool roll. The actual destruction of kit is not in itself a very serious matter, as tools easily can be replaced, but it may be taken as certain that if the tools indicate bad usage, the nuts, etc., throughout the machine will be found in the same worn and mishandled condition. A good shifting spanner, if properly used, should last for years, but a few weeks in the hands of a tyro will reduce it to a nerve-shattered and weak-jointed wreck.

One of the most frequent misuses of large size shifting spanners is in the application of the hammer. A shifting spanner should never be hammered except in cases of dire necessity, and then great care should be taken that the jaws are tightly gripping the nut, otherwise the stem of the spanner will become "sprung," so that it will refuse to work easily, while in all probability the nut will be ruined.

If a hammer *must* be used, the blows should be delivered to the handle of the spanner on the side opposite to the jaws—that is, with the bottom jaw of the spanner pointing in the direction the nut is intended to turn. If the spanner is placed wrong way on and hammered, a few blows will probably suffice to ruin it, and at no time should pressure be applied to a shifting spanner in the wrong direction.

Shifting spanners are not intended for the purpose of removing or tightening valve caps, which must always be hammered. A special key is provided with every machine for this purpose, and not only does the use of a spanner spoil the cap, which is made of soft metal, but the spanner itself suffers.



MOTOR CYCLES IN JAPAN.

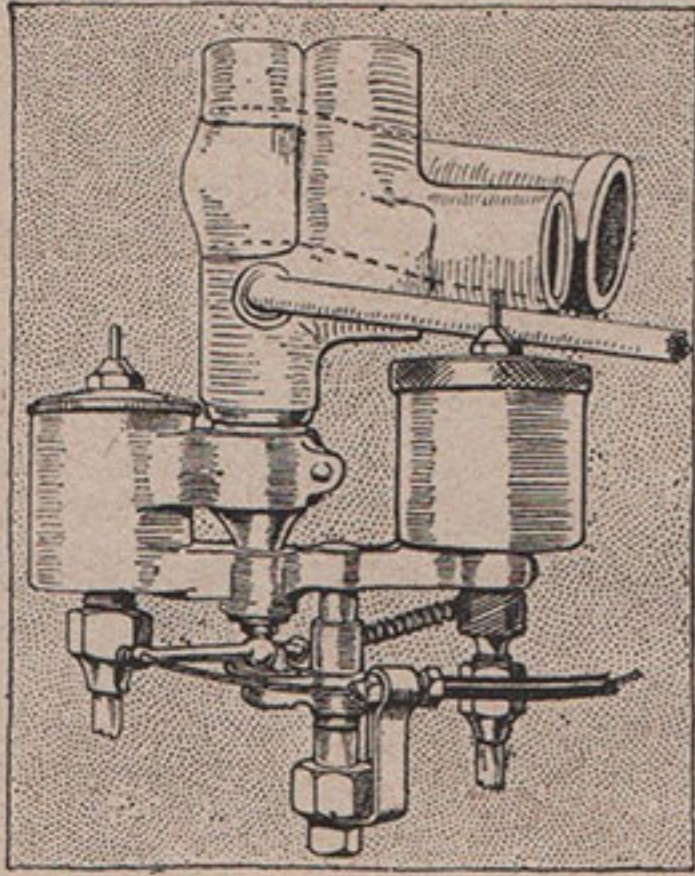
Riders of a B.S.A. and Premier crossing the Kurihashi ferry on the river Tamagawa. The photograph was sent to us by E. V. Stevens, of Sagasni, Japan

A PETROL-PARAFFIN CARBURETTER.

Device for utilising both fuels separately or mixed.

WE have recently received particulars of a conversion, which Mr. Willis of Wolverhampton has made to his Triumph carburetter, the idea of which forms the subject of a provisional patent.

In order to obtain the best running from petrol-paraffin mixtures, Mr. Willis devised the idea of fitting another float chamber to his Triumph carburetter, so

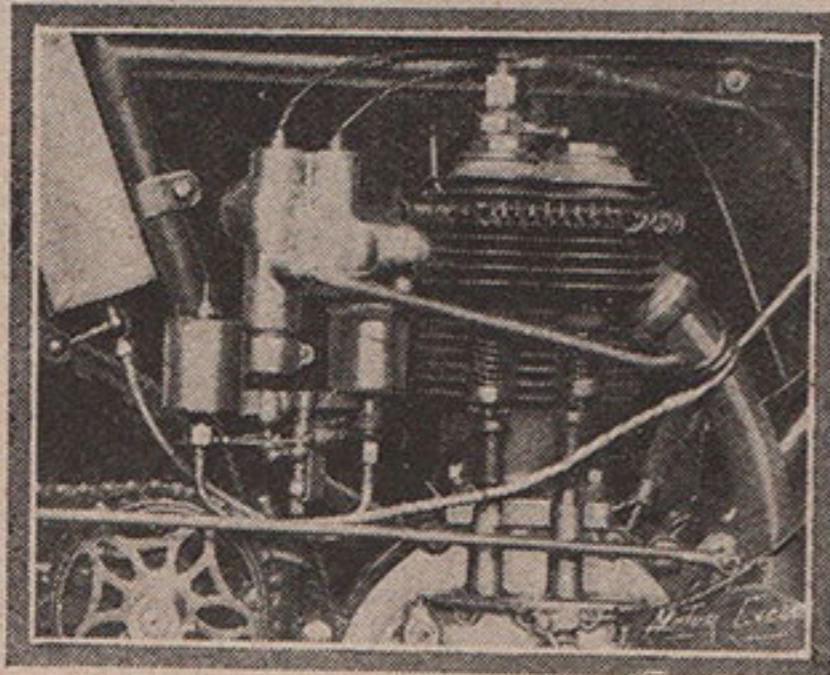


An ingenious manner of utilising paraffin as a fuel.

that either fuel might be used without the difficulty of having to drain the contents of the float chamber in order to start or run on pure petrol.

The second float chamber is so attached that a tap situated between the two float chambers controls the distribution of the fuels, either of which can be admitted to the jet at will, or, if so desired, only a portion of each fuel can be admitted.

When starting from cold the tap is turned so that only the chamber containing pure petrol from the small auxiliary tank is connected to the jet, but when the engine has warmed up, the petrol is gradually turned off, and little by little, the heavy fuel is turned on to the jet. If more power is required than can be obtained from the heavy fuel, then the tap is adjusted so that a proportion of



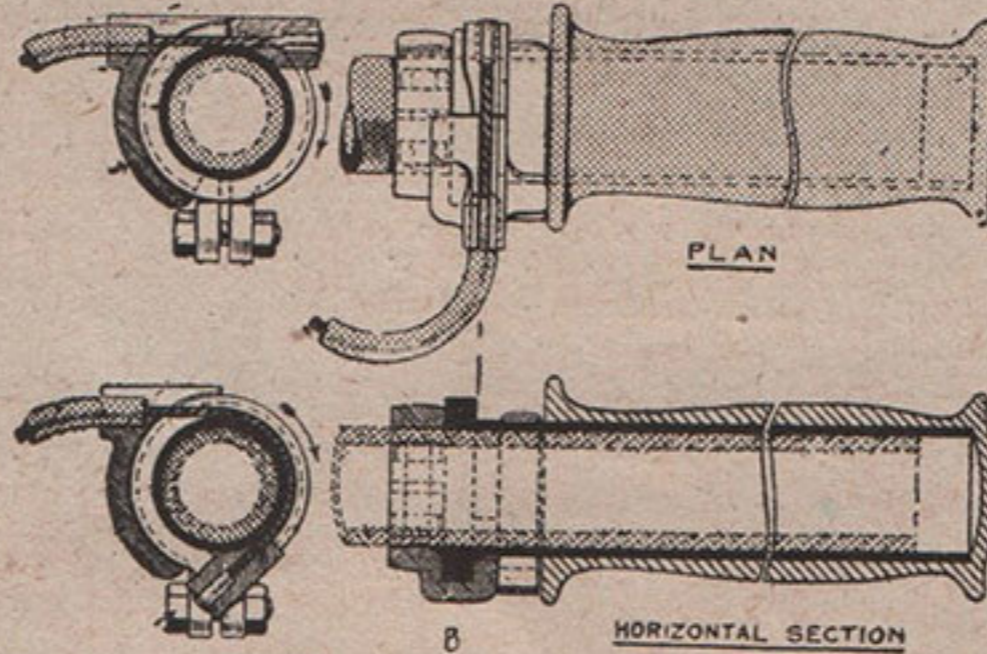
A petrol-paraffin carburetter fitted to F. H. Willis's Triumph. A separate float chamber is used for the two fuels.

pure petrol also enters the jet and mixes with the heavy fuel, so forming a more volatile mixture.

The heavy fuel feed pipe is arranged to pass round the exhaust pipe before entering the float chamber, while in order still further to facilitate the vaporisation of the heavy fuel, a pipe is taken from the exhaust and passes through the spray chamber of the carburetter just above the jet.

A TWISTING HANDLE CONTROL.

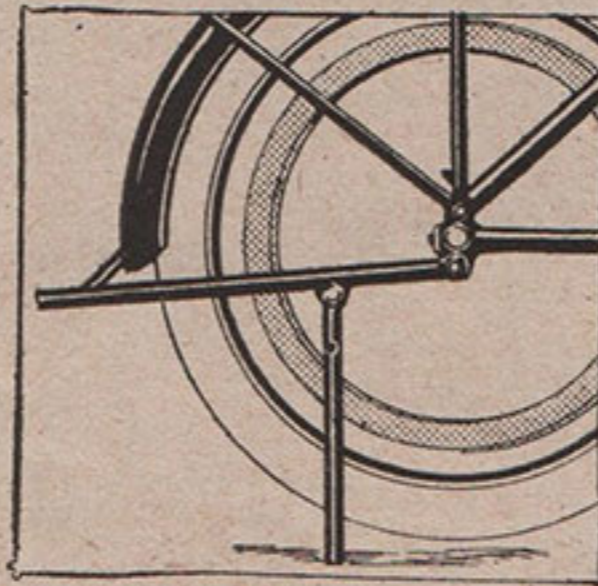
A TWISTING handle grip of extreme simplicity has been patented by Mr. S. Sadler, of 26, Claremont Rd., Sparkbrook, Birmingham. The revolving handle carries a boss to which is anchored a Bowden cable, a stop for the



outer casing being fixed to the handle-bar. The wire then leaves the handle-bar at right angles, but can be carried in any direction required. The rotating part is provided with a flange which, running in a groove, prevents the grip from sliding off the handle-bar.

A "JACK" STAND FOR MOTOR CYCLES

A NEAT and compact form of "jack" stand for a motor cycle is shown in the illustration herewith. It will be seen that the main part of the stand is of the conventional type, with secondary members that drop down when the machine is to be raised on its stand.

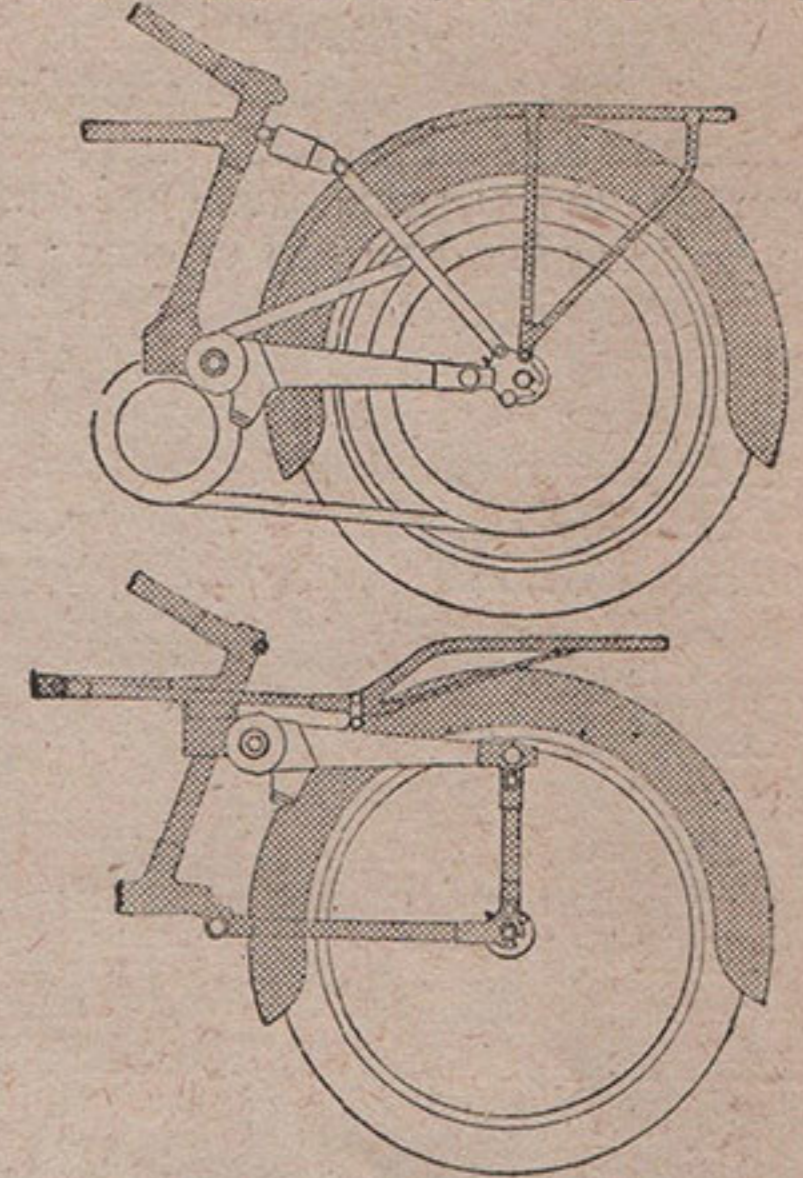


A "jack" stand for motor cycles, which enables the machine to be raised on the stand with the minimum of effort.

Foot pressure is then applied on the stand proper, which acts as a lever and lifts the rear wheel from the ground. A slight backward pull on the machine then swings the stand in the ordinary position. This is accomplished while the rider is standing alongside his machine holding it erect.

ENCLOSED SELF-LUBRICATING LEAF SPRINGS.

FOLLOWING upon our description in *The Motor Cycle* of December 14th of a motor cycle spring frame having the rear springs enclosed, a motor cyclist, Mr. Ernest Moor, of Gravesend, who has been a reader of this journal since his school days, sends us a design for enclosed and self-lubricating leaf springs. This design has much to recommend it, and is very neat in outward appearance. Two forms of springing are illustrated, but we suggest that the lower design would be improved by carrying the sup-

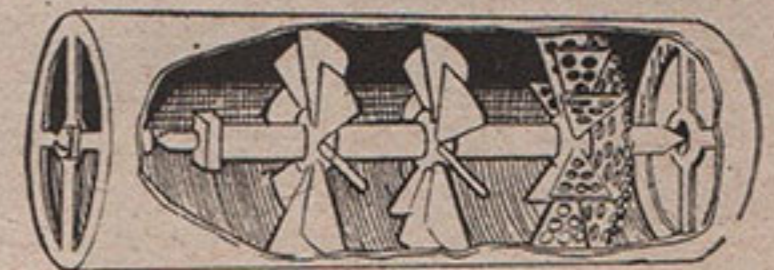


Showing various designs of encased rear springs.

ports from the spring to the axle in a loop over the wheel, and so increase the lateral rigidity. The lubrication is carried out by means of a plunger pump operated automatically by the rise and fall of the machine when running. In the upper design the leaf springs are supplemented by an enclosed coil spring below the saddle. The carrier is unsprung in the upper design, and partially sprung in the lower.

A ROTARY VAPORISER.

WE illustrate herewith a rotary vaporiser, the invention of one of our readers—Mr. A. E. Sampson, of Penketh. The device is automatically actuated by the movement of the incoming gases. This sets the rotor working



A vaporiser intended for existing machines patented by A. E. Sampson.

at high speed, and very thoroughly combines the air and petrol passing through the induction pipe. No heating of the pipe is said to be necessary, even when heavy fuels are used.

THE CASE FOR THE LONG STROKE



by
JAMES L. NORTON A.M.I.A.E.



EXHAUSTIVE consideration of the subject of long v. short stroke engines cannot well be entered into in this journal, the subject being a complex and intricate one with many side issues, which I shall, as far as possible, avoid where the root of the argument is not affected. Before dealing with the several arguments of "A.A.S." under "Bearing Pressures," issue of October 19th, permit me to call attention to features in the article which give one the impression it was a biased and unfair attack upon the long stroke engine, rather than a true endeavour to determine the respective merits of either type. In the first place, "A.A.S." compares the reciprocating weights of two engines of dissimilar size, the long stroke capacity being roughly 8½% greater than the medium stroke; the fact that piston weight increases more rapidly than in direct proportion to an increase in size, and its effect upon inertia stresses are ignored, and this renders his figures in this connection of little true value.

Comparative pressures may only be fairly considered in conjunction with equal power development. Further, where "A.A.S." imagines he has an effective counter—referring to crank pins—he admits "the pressure is momentarily greater for a medium stroke engine," but later, in order to score a point, he says, "allowing equal gudgeon pin pressures," so altering his conditions in order to arrive at desired conclusions. (In your issue of December 7th his arguments are again similarly misleading, the figures showing a greater total piston pressure for the short stroke, where he can apparently afford to admit the fact, but, later—*re* gudgeon pin—he says, "As we may assume the pressures are equal in either case, etc.") Charity compels one to try and believe such misleading statements are inadvertent.

Yet once more must I draw attention to an assumption at once misleading and unfair, and then turn to the more congenial matter of dealing with the arguments proper, or, I greatly fear, my readers will accuse me of becoming vituperative, which I wish most earnestly to avoid becoming.

Both the reciprocating and revolving masses of the medium stroke engine which require balancing are greater than those of the other type, and yet "A.A.S." assumes both to be the same amount, *i.e.*, 4 ozs., out of balance, instead of basing his figures upon the fair assumption that the unbalanced mass is the

same percentage of the total mass in either case, there being nothing to prevent both engines being balanced to the same degree of accuracy.

Failing this, his conclusions are of no effect.

Bearing Sizes.

"A.A.S." states: "The bearings can be larger for a medium stroke big bore engine than for a long stroke small bore engine, other conditions as specified being equal."

In this connection special attention is given to the crank pin with a drawing intended to prove that, owing to the proximity of the flywheel rim, a large bearing cannot be used. This, as pointed out by other writers, is a fallacy. If desired, a recess may be

put in the rim as fig. 1 to permit of an exaggerated crank pin, not only without detriment, but with slight advantage to balancing. This, in fact, is the usual procedure.

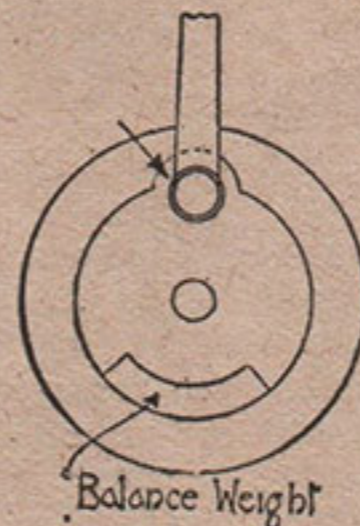
There is, therefore, nothing to prevent the crank pin bearing of the long stroke being as large as desirable, but, whatever size be used, a still larger bearing is compulsory in the shorter stroke to obtain the same resistance to wear, as will be seen later. Incidentally, the usual type of crank pin bearing and the main shaft of a truly *short* stroke motor cycle engine are in such close proximity that comparatively small dimensions are compulsory. It is obvious that the big bore will admit a longer small end bearing than the long stroke engine, but this advantage is quite eclipsed by the greater pressure per square inch it has to support. Given that one-half the total length of either gudgeon pin is supported by the piston bosses, and that the total length is roughly equal to the bore (neglecting clearance), we have in the short stroke a bearing 1¾ in. long against 1⅝ in. in the long stroke, both of ⅝ in. diameter.

Now let us see what approximate explosion pressure per square inch of projected area each bearing is subjected to, allowing a maximum load of 250 lb. per square inch of piston head in both cases, this pressure being fairly well within the mark.

Long stroke, bore 82 mm. $\pi r^2 \times 250 = 2,046.4$ lb. on piston head = 2,014.9 lb. per square inch of projected area of gudgeon pin bearing.

Short stroke, bore 88 mm. $\pi r^2 \times 250 = 2,356.9$ lb. on piston head = 2,154.8 lb. per square inch of projected area of gudgeon pin bearing.

The subject of bore-stroke ratio is a controversial one. Ever since the earliest days of motoring the subject of long v. short strokes has occupied the close attention of engine designers. An article on "Bearing Pressures," which appeared in "The Motor Cycle" for October 19th last, was, perhaps naturally, interpreted as being unjust to the long stroke engine by Mr. James L. Norton, A.M.I.A.E., than whom no greater exponent of the long stroke engine exists. His contribution to the subject is appended.—ED.



The usual provision for crank pin in flywheel rim of a long stroke engine, which makes a smaller bobweight possible.

The Case for the Long Stroke.—

For brevity's sake I have omitted showing the entire calculation. It will be seen that the short stroke bearing has an additional load of approximately 140 lb. per square inch; it is therefore in effect much smaller, and will require rebushing more frequently than the long stroke engine, with its smaller total load and pressure per unit of bearing area.

"A.A.S." states: "Although the pressure is momentarily greater for a medium stroke engine, its greater bearing area helps to equalise matters."

It is shown that the assumed greater crank pin possibility of the big bore engine does not exist, and as the greater pressure on its bearing is admitted—this must be approximately 20% greater in order to yield the same power per revolution—the disadvantage in this connection is all with the shorter stroke.

"But the long stroke suffers wear for a greater distance of its bearing travel," "A.A.S." continues. If the *smaller* pressures of the long stroke are distributed over a greater distance, then surely the long stroke has a double advantage.

"A.A.S." further states: "On the main shaft bearings the wear will be equal so far as explosion pressures are concerned, as the total power transmitted will be equal." This assertion is entirely wrong. We will, for the moment, assume an impossibility, *i.e.*, that the total power transmitted by one stroke of the long stroke engine can be equalled by one of the shorter stroke, both having the same gear. With a force or pressure of, say, for example's sake, 100 lb. on the crank pin of the long stroke engine, and assuming, for simplicity's sake, there is no loss in transmission, so that the amount of work equals the power or pressure, and the effective pulley diameter is equal to the stroke length (ignoring the angle of belt pull which will not affect the issue), we have the following. See fig. 2. Here we see that the load sustained by the long stroke bearing is the total of pressure 100 lb. + 100 lb. load = 200 lb.

Now turn to fig. 3, in which the shorter stroke engine, with its 20% shorter crank or lever, is shown doing the same work, it will be seen a 20% increase of pressure or power is necessary in order to balance the levers (see "A.A.S.," *The Motor Cycle*, November 16th.) Pressure 120 lb. + 100 lb. = 220 lb. load on main bearing, or 10% greater than that on the long stroke bearing. *If this were not so the short stroke engine would do only 80% of the work of the long stroke.*

It is stated the "peculiarity of the long stroke engine of hanging on under load, at low speeds especially, is not a help to long life for the bearings by any means."

This perhaps inadvertent admission that the long stroke engine has the peculiarity, *i.e.*, advantage, of *maintaining* a greater power output, and the statement that such does not help the bearings, almost tempt one to reply in sarcastic vein, apparently the short

stroke owes its alleged longer bearing life to its comparative inefficiency and lack of power.

Cylinder Lubrication Difficulty.

On this question it need only be said that for the long stroke such difficulty does not exist, that a greater proportion of the area of cylinder wall is permanently shielded from the oil spray by the piston of the short stroke engine, and that not only does the smaller piston of the long stroke leave a greater length of cylinder exposed to the oil, but the lower portion of the piston itself may be, and usually is, subjected to a direct oil spray from the flywheels, this, too, on the side taking the load. This oil is carried up the cylinder walls to a point higher than the lowest position of the piston rings, which descend into a flood of fresh oil, and are thus directly and copiously lubricated every stroke. This very distinct and valuable advantage is denied the *short* stroke engine, as instance results at Brooklands.

Lubrication of Big End.

This bearing, when depending upon splash, is, perhaps, more precariously situated than any other one in the engine. The short stroke bearing, revolving as it does in that portion of the crank case most void of oil, is again at a disadvantage, whereas the path of the long stroke big end is where the oil spray is almost at its maximum density, and where the friction of the crank case walls, tending to retard its speed, possibly causes a slight pressure of oil—due to inertia—upon the bearing.

Cylinder Wear and Piston Ring Pressures.

Here we have possibly the greatest frictional loss in an engine. "A.A.S." omitted referring to this important feature in his article, and dismisses it with slight consideration in his letter of December 7th, but one has only to examine a cylinder after use to realise that the effects of piston pressure may almost be ignored when compared with the serious loss due to ring friction. The ridge in a cylinder, indicating the sudden increase of bore diameter due to wear, is not at the end of the path swept by the *piston*, but that swept by the *piston rings*. Unfortunately, piston ring pressure causes a dead loss; there is no return for it, as there is for piston pressure due to the increased angularity of the long stroke connecting rod, for, *whatever this pressure may be*, it is transmitted directly into turning effort on the crank pin. The wearing effects of this pressure need scarcely be considered, except upon two of the four strokes of the cycle, and very little upon one of these, *i.e.*, the compression stroke, whereas the piston ring loss is at a maximum over each of the four strokes.

Static friction, or the friction of rest—far more serious per unit of pressure than that of motion—comes into effect at the end of each of the four strokes.

(Fit a piston with its rings into a cylinder and endeavour to reciprocate it; the serious effort to start

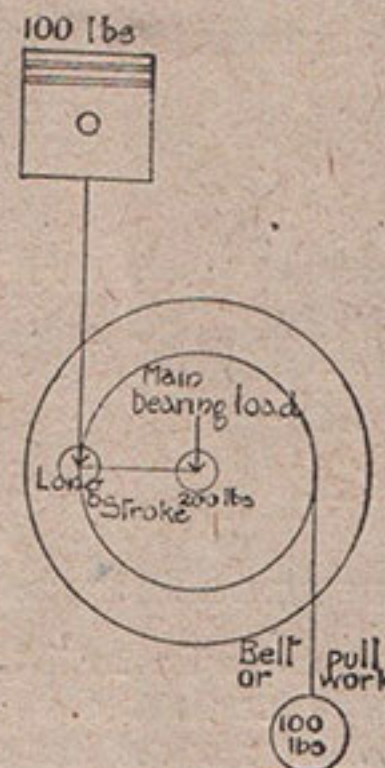


Fig. 2.—Showing load on long stroke main bearing for 100 lb. pull.

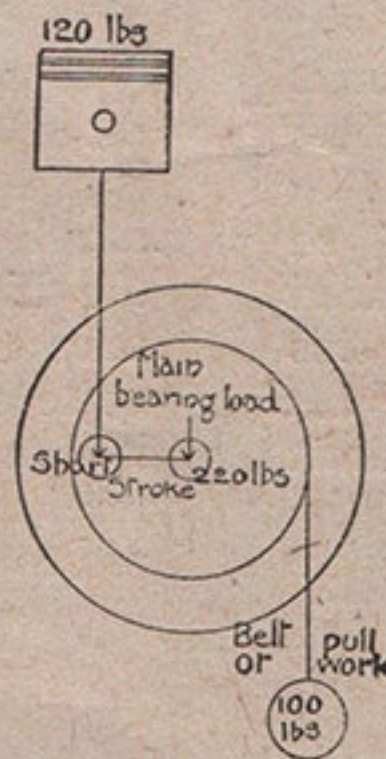


Fig. 3.—The short stroke requires a greater piston pressure to do the same work as a long stroke, with consequently greater bearing pressure.



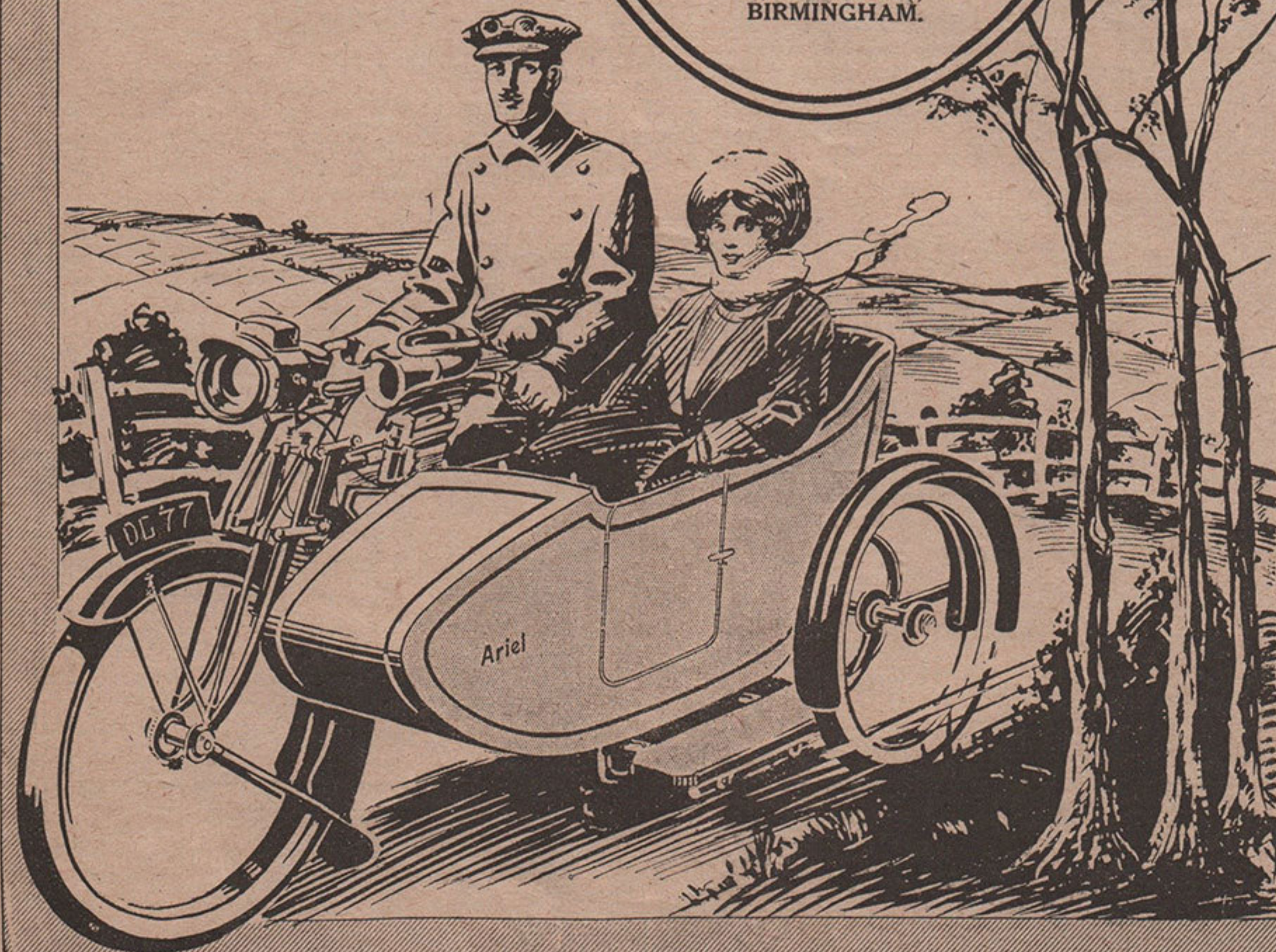
Ariel

The Motor Cycle of Supreme Reliability

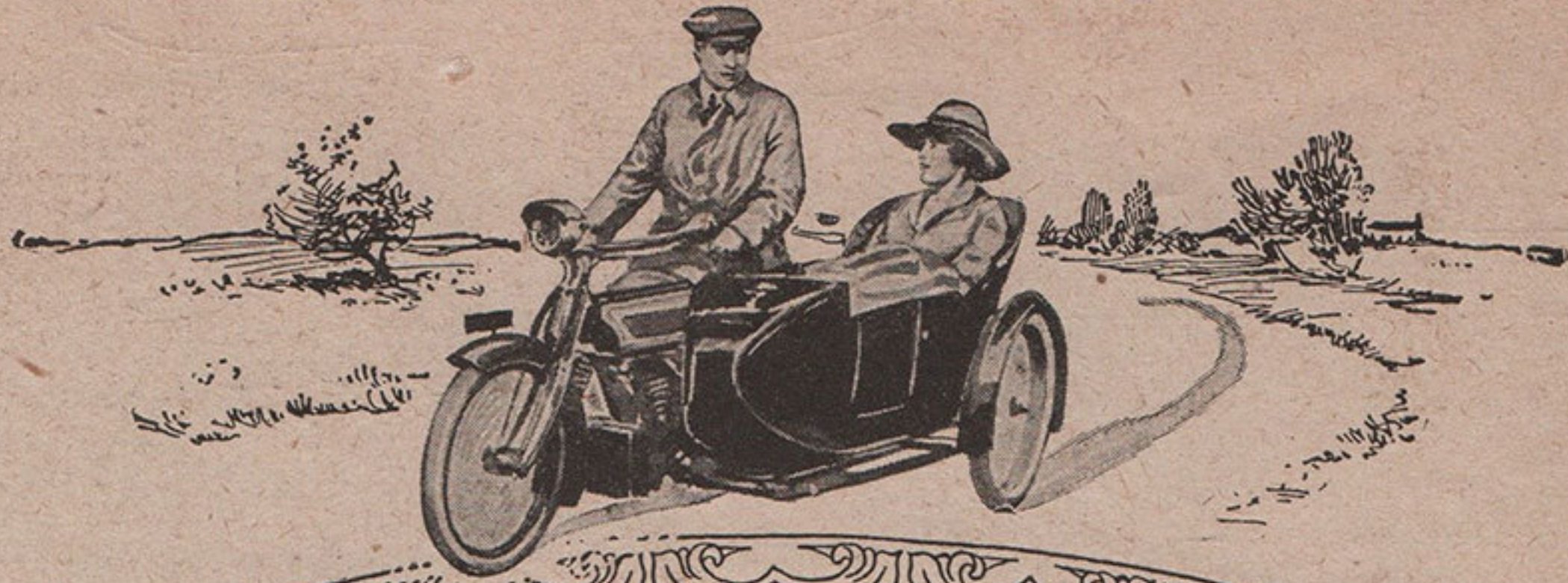
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contested reliability trials, in
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The Case for the Long Stroke.—

it moving, compared with the effort of sliding it *after* starting, will be noted.) But, it will be said, both engines suffer from the same disadvantage. Quite so, but not nearly to the same extent; the difference being a serious debit to the short stroke, particularly if it be remembered that the short stroke rings are not so effectively lubricated as those of the long stroke.

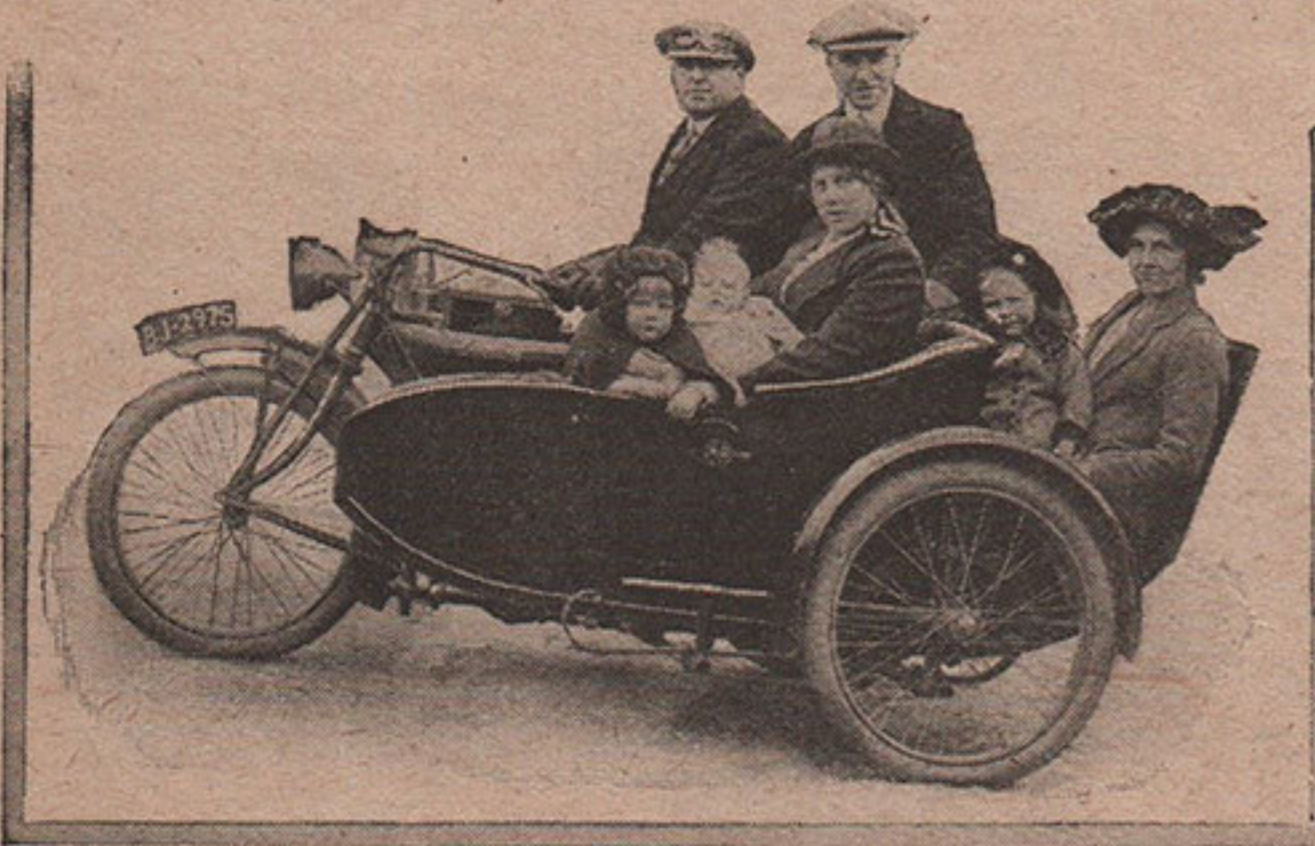
The pressure of rings may be found by formula, the pressure per inch being determined by the thickness and diameter of ring and the width of gap. It is natural to assume that the larger ring will be proportionately broader, thicker, and with a wider gap, but, in order to avoid unnecessary figures, we will suppose the short stroke ring to have the same pressure per square inch as its smaller rival, and will put this at the somewhat low figure of 5 lb. ("A.A.S." suggests 10 lb. to 15 lb.)

Long stroke ring 82 mm. $\times \frac{5}{8}$ in. = area 1.58525 square inch \times 5 lb. = 7.92625 lb. total pressure on cylinder walls.

Short stroke ring 88 mm. $\times \frac{3}{8}$ in. = area 2.04182 square inch \times 5 lb. = 10.20910 total pressure on cylinder walls.

Here in the most active power-consuming feature of the engine, which gets in its fell work every stroke regardless of throttle position or work required, be it little or much, running light or under load, the short stroke suffers an irredeemably increased loss of approximately 30%.

That portion of the article under the sub-heading "Centrifugal Pressures" appears to be a confusion of issues and misstatements, based upon erroneous assumptions and unfair comparisons (see introductory notes), and I shall not, therefore, attempt to deal with it in detail. As, however, it all centres around inertia stresses, I will as briefly as possible state the position of the two engines in this respect, commencing with a statement of the fact—which, I think, is never denied—that at higher than average revolutions, and under such conditions only, the long stroke connecting rod bearings may be subjected to higher mean inertia stresses than the short stroke at the same high revolutions, but—and here is the crux of the matter—it is never necessary to run the long stroke at so high a



CAN THE LIGHT CAR EQUAL THIS?

One advantage seldom mentioned in discussions on sidecar *versus* light car. A 7-9 h.p. Indian Powerplus with double-seated sidecar owned by Mr. B. J. Haste, of Bramford, Ipswich.



SOME NUMBER PLATE.

A Belgian rider in one of the densely wooded avenues approaching the city of Antwerp. Prior to the war, motor cyclists in Belgium were obliged to carry number plates of ungainly size on their machines.

speed as the short stroke to develop equal power, or, in the case of a motor cycle, the same road speed. This fact, I think, is generally acknowledged, but it is not generally realised exactly what this means.

Every mechanical loss, *i.e.*, friction caused by explosion pressures and piston rings, unbalanced forces and inertia pumping efforts, valve operation, etc., is, with its attendant wear, multiplied in the short stroke engine owing to this necessity for higher revolutions. And here the importance of the V₂ factor and its effects with increase of speed upon the heavier reciprocating parts of the short stroke must not be overlooked. There are advantages in the use of a short stroke, but these in no way apply to the bearings, and consist in the possibilities of a lesser total weight, and, to the manufacturer, the fact that an extremely high standard of accuracy is not quite so essential as with long stroke engines.

I think we may safely deduce the following from our considerations:

The short stroke engine bearings are subjected to greater explosion pressure per unit of area, and, therefore, greater wear than the long stroke at equal revolutions.

At equal power output these pressures are still further increased in the short stroke engine, which may, in consequence, be expected to have, comparatively, a shorter life.

The short stroke engine bearings are subjected to greater inertia stresses than the long stroke at moderate speeds, but these stresses increase more rapidly in the long stroke with an increase of speed, and there is, therefore, a point at which they become greater than in the short stroke. There is some doubt if this critical point is often, if ever, reached, excepting in track machines, particularly when one remembers the increased revolution speed of the short stroke necessary to equal the greater power of the long stroke.

In conclusion, may I quote Mr. F. W. Lanchester in one of his papers before the I.A.E.? It will be remembered the Lanchester car was one of the last to abandon the use of the short stroke. "*Under all circumstances the short stroke is at some slight disadvantage on the score of mechanical efficiency.*"



TIMES TO LIGHT LAMPS. GREENWICH TIME.

Jan. 11	...	...	4.42 p.m.
" 13	...	...	4.44 "
" 15	...	...	4.47 "
" 17	...	...	4.50 "

A Government Appointment.

Mr. Percy Martin, the managing director of the B.S.A. and Daimler Co.'s, has received an important Government appointment, and will, we understand, represent the Ministry of Munitions on the Air Board.

Petrol for our Fighting Men.

Officers home on short leave will be glad to hear that they can obtain from the Petrol Control Committee, 19, Berkeley Street, London, W., licences for one or two months' supply of petrol, subject, of course, to the usual restrictions, i.e., a motor cyclist can obtain either two or four gallons per month.

The Man Power Board.

We are pleased to learn that Mr. Eric N. Gamage, a director of Messrs. A. W. Gamage, Ltd., and eldest son of Mr. A. W. Gamage, has been appointed by Mr. Neville Chamberlain to take charge of the Suggestions Department of the above Board.

Another Name for the Tanks.

Is it true that among the Scots regiments the "Tanks" are known as "Uncanny Lorries"? *London Opinion* says that a reader from beyond the border has suggested the nickname at any rate.

Flat Twins of Moderate Capacity.

We have received from Mr. Granville E. Bradshaw some lengthy and conclusive comments upon the subject of flat twins, and the contention of a writer in a contemporary that "While the 350 c.c. opposed engine is singularly successful, engines of a larger capacity had yet to prove their success. *The development, and consequently the efficiency, were limited because obvious faults were inseparable from the design.* . . ." As, however, we have already devoted a considerable amount of space to this topic we do not propose to continue the discussion at present, particularly as there can be no two opinions amongst engineers as to whether it is possible to make a really efficient flat twin of over 350 c.c. capacity, and that, neglecting side issues, is really the disputed point. This has been conclusively proved by "Ixion," Mr. Bradshaw, and other contributors to our pages.

A Petrol Query Settled.

The Petrol Control Committee tells us definitely that one may go on using personal petrol licences until all the petrol sanctioned by it has been purchased—this quite apart from whether or not one has taken all the spirit before the end of April (for a car licence) or March (for a motor cycle licence).

Prisoners to Mend Roads.

The Essex County Council has asked the War Office to arrange for the employment of German prisoners of war in repairing Essex main roads. All of the members of the surveyor's staff who are of military age have been released for road making behind the British lines in France, and ten steam rollers have been lent for the same purpose. For over two years such a course has been urged in various quarters.

Enriching the English Language.

The use of the term "flat twin" in preference to horizontally-opposed engine is merely a case of economy in words. Americans cannot agree whether to accept the term. Some time ago, Mr. E. B. Holton, a leading motor cyclist over the water, seized upon the term with enthusiasm, and said: "As it is good, I hope we adopt it into our own lingo. It is the English appellation for a doubly opposed motor. The beauty of it is that it fully describes the type, and at the same time is short."

A departmental manager of the Hendee Co. at first thought it was not bad, but that it would hardly do in the States, as it would quickly become confused with an American slang phrase. Be that as it may, journals throughout the world

SPECIAL FEATURES:

THE CASE FOR THE LONG STROKE.
A DOUGLAS IN THE DESERT.

A RUN ON A 1916
7.9 h.p. MATCHLESS.

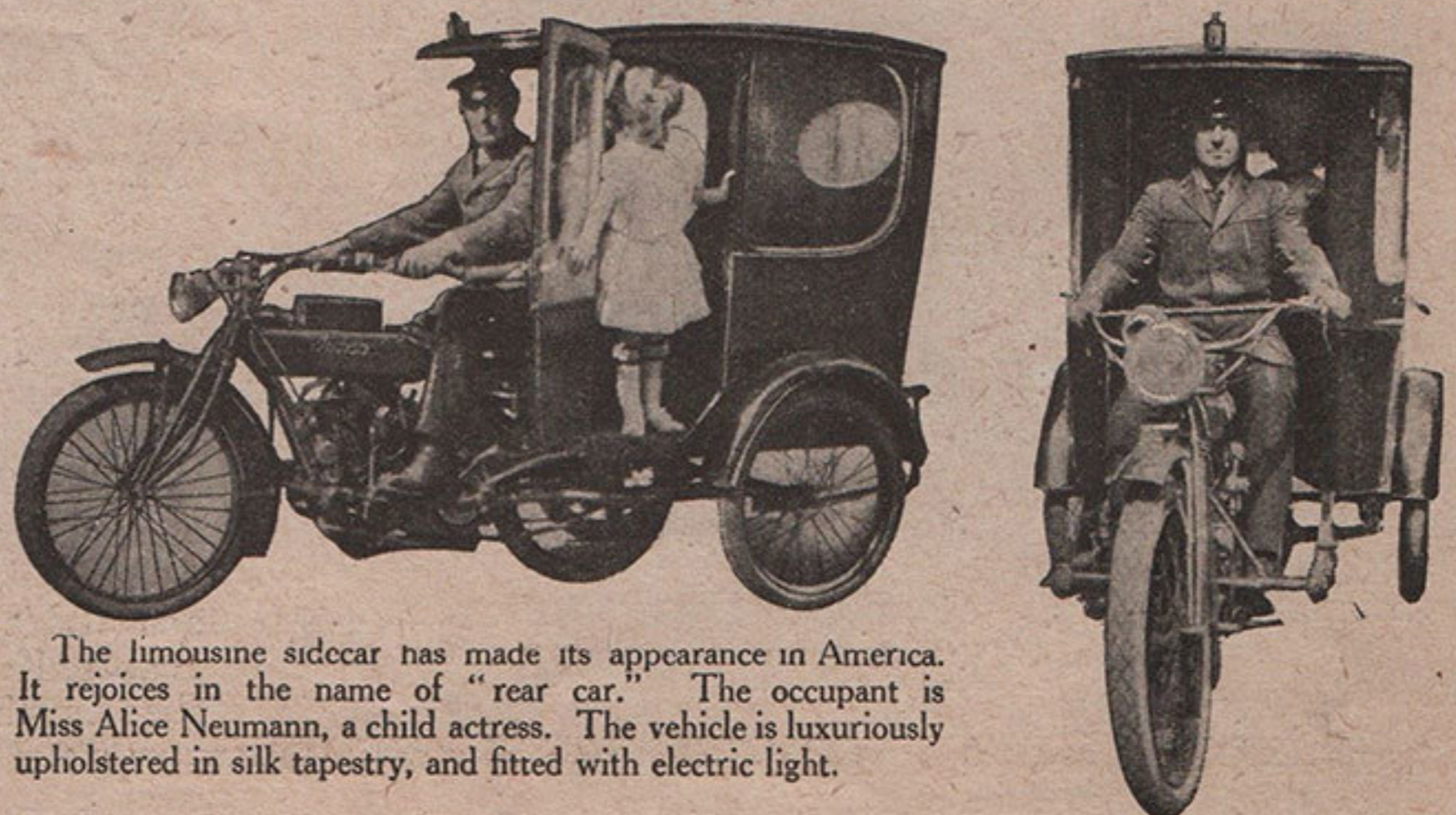
(including American journals) are following the lead of *The Motor Cycle*, and even if our American friends do not put their hall mark upon it, they will find that ere long it will become the accepted term among motor cyclists.

Six Miles an Hour Speed Limit.

The Town Council of High Wycombe has carried a resolution stating that the speed limit of motor traffic should be reduced to six miles an hour after dark, and that an application be made to the Local Government Board for an Order fixing the speed limit as suggested. Alderman Ellis said that Wycombe traffic was a thousand times more dangerous than London, Councillor Elsom concurring. If that is the case, and we would not for a moment doubt the truth of the alarming statement, then six miles an hour certainly should be the maximum.

Motor Trades Debating Society.

A subject of extreme importance to those interested in the great labour problem will be discussed by the above society at the R.A.C. on the 17th inst., the resolution being "that restricted output is justified." Mr C. Latham will support the resolution, opposed by the vice-president, Mr. Powell. Arrangement can be made to attend the debate by communication with the hon. secretary, Mr. C. D. Clayton, 52, Shaftesbury Avenue, Piccadilly, W.



The limousine sidecar has made its appearance in America. It rejoices in the name of "rear car." The occupant is Miss Alice Neumann, a child actress. The vehicle is luxuriously upholstered in silk tapestry, and fitted with electric light.

“NORTH BRITISH
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A Message

—to *Motor Cyclists*

The War has taught us many things. It has shown us the value and efficiency of the motor cycle.

Likewise, War Work has proved the value of “Clincher” Motor Cycle Tyres. Everyone who has used them has been thoroughly satisfied.

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23rd October, 1916.

The Palace Cigar Box,
Reading.

Dear Sirs,

Including my two Sunbeams (3½ h.p.) I have had 17 motors in 5 years for my own private use; the 1915 model I bought of Messrs. Baker and Son, Reading, in May last year, and, after travelling 25,000 miles in **all** weathers regularly, it has not yet cost me a penny for repairs, and I have not had a single trouble on the road; in fact, apart from puncture trouble, I could have ridden the whole distance without tools, and now the machine looks better than any other make I have had after doing 10,000 miles.

My 1916 3½ h.p. I purchased through an advert. in "The Motor Cycle" a fortnight ago; the machine has only done 1,500 miles, and is unscratched; the price I gave for it was £65; two friends of mine here want it, their offers are £70 and 70 gns., but it is not for sale; they are keen on it, knowing all about my 1915 model.

Yours faithfully,

W. PRIDMORE HARDY.

Prospective buyers are advised to apply to have their names put on our Waiting List.

Catalogue and full particulars sent on application to

JOHN MARSTON, LIMITED, 11, Sunbeamland, WOLVERHAMPTON.



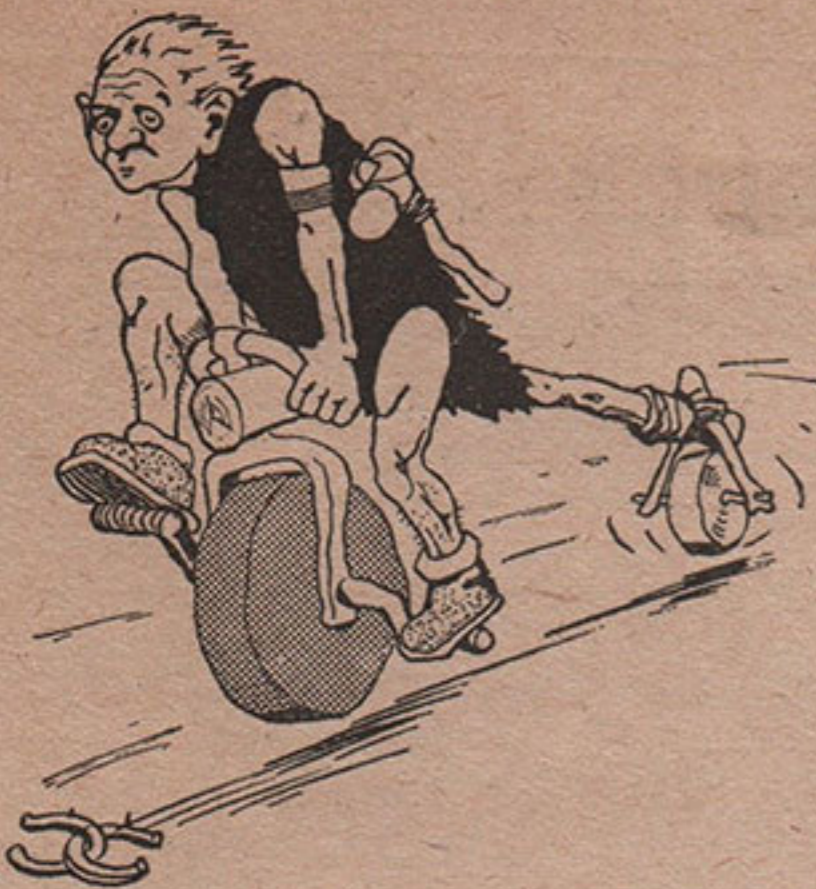
Power and Reliability

are, as every rider knows, the dominating features of the

STURMEY ARCHER COUNTERSHAFT GEAR

and though, for the moment, the general public must do without it, we know that everyone will bear the absence in patience, knowing that, like thousands of its riders, the Sturmeley-Archer is doing its bit towards the Empire's goal. But when the war is over and it can be supplied once more, then—well, then—ask the men at the front if there is any other gear to consider.

**STURMEY-ARCHER GEARS
LIMITED, NOTTINGHAM.**



HUMOUR FROM THE WAR ZONE.

A clever drawing of a pre-historic "despatch" rider (coloured in the original) was sent to us with seasonable greetings by the despatch riders of the XIII. Corps in France.

The National War Funds.

At the week-end the principal war funds stood as follow :

The Prince of Wales's Fund (distributed £3,529,719)	£6,021,270	0	0
British Red Cross Fund	5,830,036	0	0
Tobacco Fund	123,454	0	0

A Motor Cyclist's Enthusiasm.

Driver G. N. Bull writes from Egypt specially to refer us to the article which recently appeared in *The Motor Cycle* entitled from "Birmingham to the Isle of Wight," in which the author referred to the town of Brighstone as being pronounced Brigstone. Driver Bull tells us this is the old-fashioned way; it is now pronounced as it is spelt.

Light Cars for All Weathers.

Those interested in light and economical winter cars should buy a copy of next Wednesday's issue of *The Light Car*, which will be mainly devoted to the subject. Coupés of the limousine and cabriolet types will be dealt with in detail. *The Light Car* is an enterprising journal in a buff cover, issued from the offices of *The Motor Cycle* every Wednesday, one penny.

Expiration of Petrol Licences.

There has been a misunderstanding in the minds of some people respecting the validity of petrol licences after the end of April next. The Petrol Committee in a recent communication says that balance of petrol allotted but not purchased may be obtained any time after April. It is understood, of course, that not more than the maximum amount allotted to motor cyclists will be able to be purchased in any subsequent month.

Mr. Edge's New Appointment.

Mr. S. F. Edge, the well-known motorist, and a pioneer motor cyclist, who, since his retirement from business, has devoted his time to the study of agriculture, has been appointed Agricultural Machinery Controller. In the early days of the movement he was a generous patron of motor cycling, and even now takes a kindly interest in the pastime. He is a great believer in the lightweight.

An Illuminating Clause.

No lights are to be shown on stationary vehicles visible from the sea, yet no machines may be left stationary without lights in any place to which the public have access. The "dark" lamp would appear to offer the only solution.

From the "Birmingham Post."

"Wanted, motor bicycle, first-class only, 1916 B.S.A. or Triumph, only perfect one; £20 to £30.—Call ———." We refrain from giving full name and address, but if any reader is anxious to dispose of his 1916 Triumph or B.S.A. for that amount we will forward his letter.

The Ubiquitous Sidecar.

We notice the Imperial Tobacco Co., in a series of picture cards issued with cigarettes, speak of and illustrate the sidecar. "These handy motor cycles," the description goes, "with their sidecars, were quickly adopted by the military authorities as a very satisfactory means of rapid transit. All the allied armies are using these reliable and very efficient little machines, and large numbers of them are in constant use at the Front."

Flexible Rating.

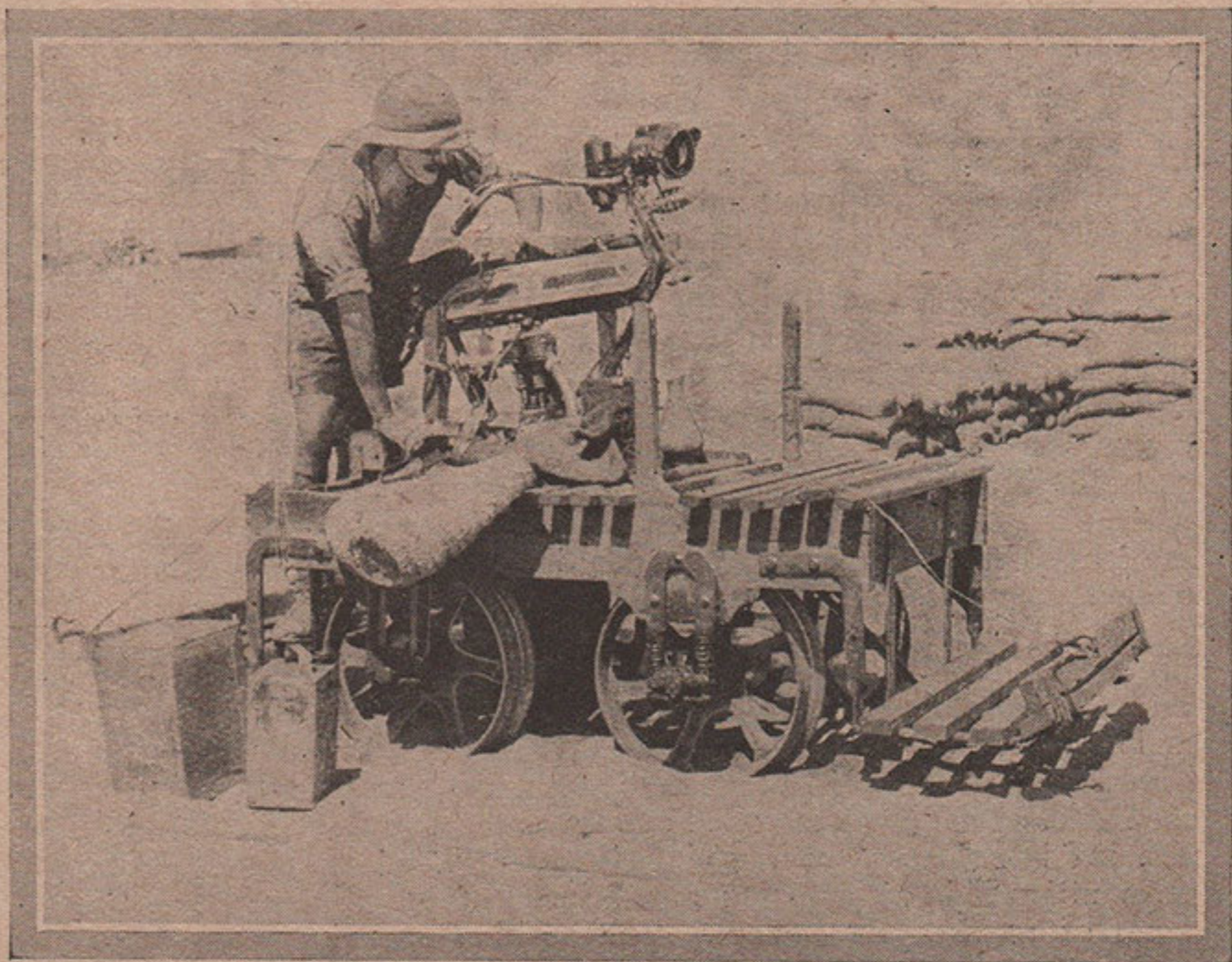
We have before us a private owner's advertisement from *The Motor Cycle* stating that he has a 17 h.p. Indian for sale. We do not aim at solving the question, but, judging from the latest rating of the big American twins (Harley-Davidson 16 h.p., Reading Standard 12 h.p.), he has probably heard the very latest news of the Indians new h.p., though we must acknowledge it has not yet reached us.

Army Motor Cycles.

The subject of recurring troubles with motor cycles in the Services is discussed, not for the first time, in our leading article this week.

The Human Body and the Motor Bicycle.

The other evening Professor Arthur Keith, M.D., F.R.C.S., opened a course of juvenile lectures at the Royal Institution. The first was entitled "The Human Machine, which All must Work." In the course of the lecture Professor Keith likened the 300 muscles of the human body to an engine, and said "that in some respects they are like the internal combustion engine of a motor bicycle; in other respects they are very unlike it." And with the aid of diagrams of both the motor bicycle and the human body he explained the resemblances and differences. "Muscles are slow combustion engines fitted with so perfect a radiatory system that they never become overheated." "Water," the lecturer went on to say, "has constantly to be applied to motor bicycle engines to keep them cool." Evidently the learned professor is more closely acquainted with muscles than motor bicycles. "Muscles are also furnished with sparking plugs—an ignition system—which rarely get out of order." The first motor bicycle engine had to do four strokes to get one effect. A pump was invented which did away with two of these strokes. "But millions and millions of years ago," Professor Keith said, "Nature saw the value of the pump for the human machine, and so she provided the heart." We are afraid that a motor cyclist would find this line of argument a little hard to follow.



RAILWAY TROLLEY PROPELLED BY MOTOR CYCLE ENGINE.

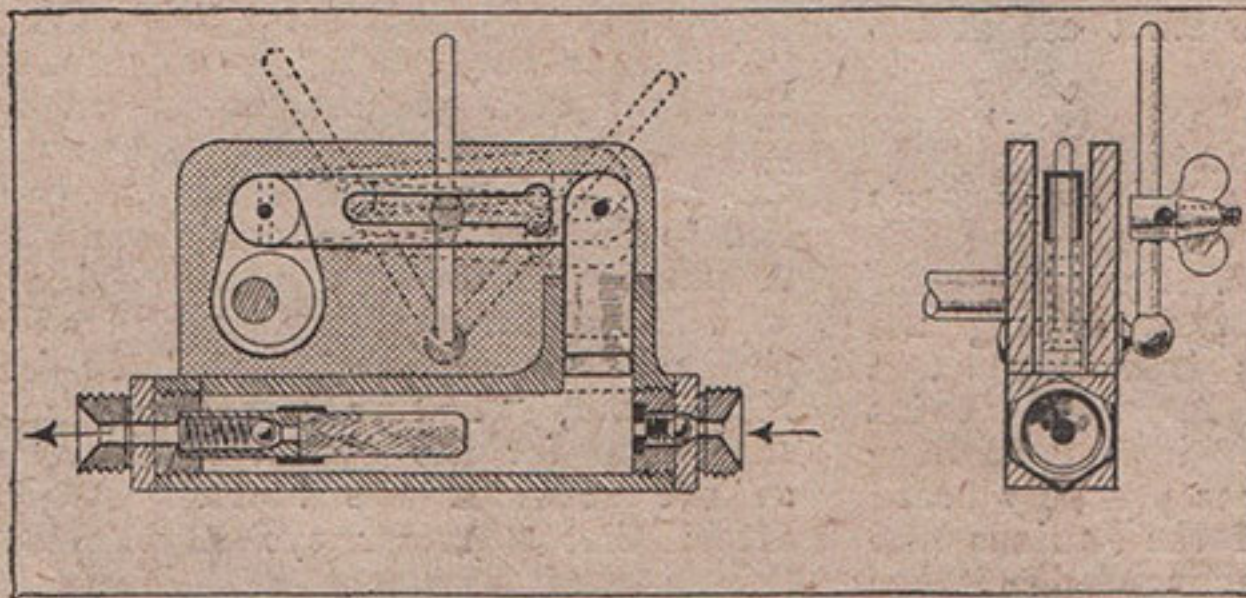
The ingenuity of our fighting men at the various fronts is to be admired. The light railway trolley shown above in Western Egypt is propelled by a 4 h.p. Triumph motor cycle jury-rigged for the purpose. The turn of speed the trolley can attain is quite surprising. (Passed by the Press Censor.)



Throttle-controlled Lubrication.

A New Oil Pump combining Simplicity and Efficiency with a Minimum of Moving Parts.

IN the leader of our issue of December 21st last we again called attention to the extremely important subject of mechanical lubrication controlled in conjunction with the throttle, and we remarked that, "Though progress, so far as the ordinary riding public is concerned, may be comparatively slow, the fact remains that behind the scenes there is a good deal of experimental work quietly in progress." We had in mind several notable departures by well-known manufacturers, but we were



The Lamplugh throttle-controlled lubricator with cover removed, as fitted to a 3 h.p. Enfield for experimental purposes.

unaware of this, the latest throttle-controlled oil pump. It is the invention of Mr. J. S. Spittle, director and secretary of Messrs. S. A. Lamplugh, Ltd., of Tyseley, Birmingham, and is the outcome of several years' experimental work devoted to the question of perfect lubrication.

Positive Action.

Its principal feature is the positive up and down stroke of the plunger, obtained without the use of springs. A small gun-metal casting carries the whole mechanism; a flexible driving cable, driven from any suitable part of the engine unit, turns a worm and wheel; the shaft of the wheel carries a short crank, set eccentrically, so that a regular up and down motion is imparted. To the small end of the crank is pivoted one end of a lever, the other end being pivoted to the top of the pump plunger. This lever carries a movable stud, sliding in a slot in the lever, and operated by an outside rod. The Bowden throttle control cable is attached to this rod, so that the stroke of the pump is varied exactly as the throttle opening is varied. The range of stroke variation is from nil to $\frac{3}{16}$ in., this being found sufficient for all types of motor cycle engines. The position of the cable attachment to the operating rod, whether high or low, can be adapted to give the best range of movement to suit a particular engine, and once set need not be altered.

The oil is passed straight through the body of the pump by means of inlet and outlet ball valves; a gauze filter is also provided. The plunger is solid metal with a cup leather head. A remarkable feature is that the whole pump is assembled without the use of nuts or screws, by means of a neat arrangement of slots in the casting. It can be taken down and reassembled very quickly without any special tools.

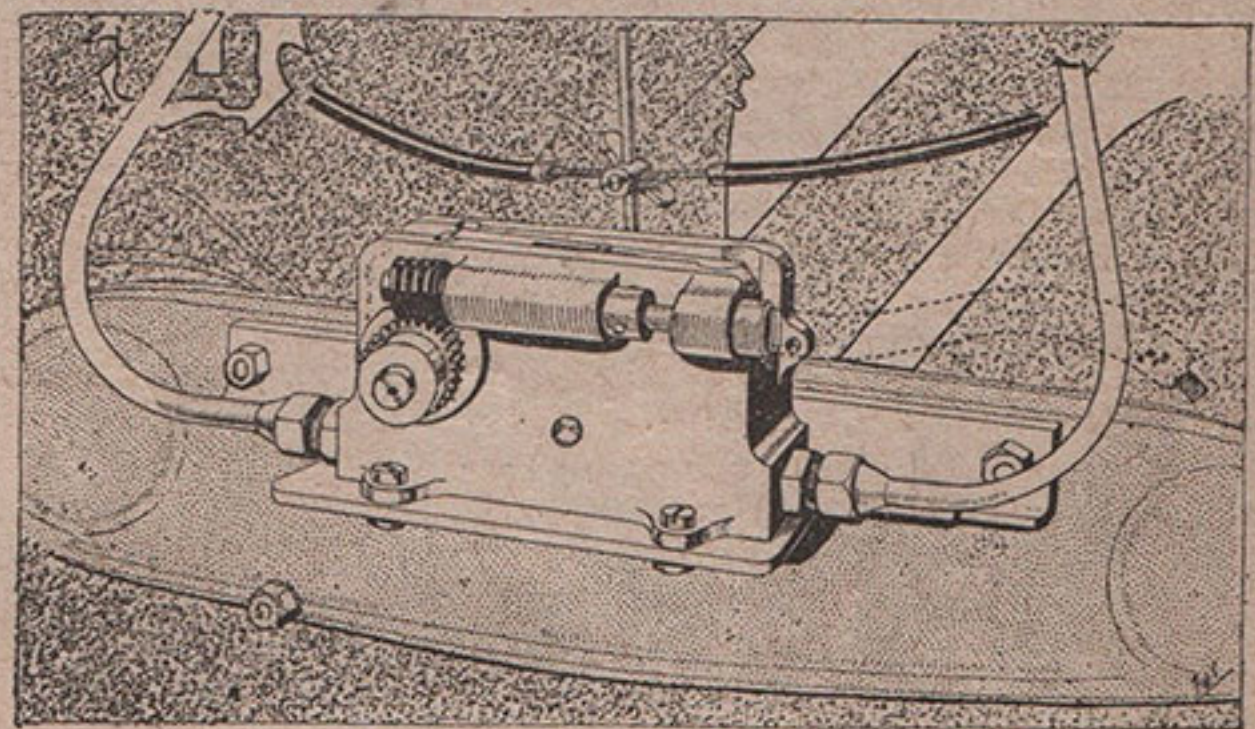
Easily Fitted.

The moving parts are enclosed by a detachable cover to exclude dirt. It will make no difference where it is fitted to the machine—the drive can be taken from any suitable point by flexible cable or other direct means, and once set to suit the engine the pump should need no further attention. There is practically nothing to get out of order, wear in its moving parts is negligible because it works very slowly, and if it is used in conjunction with a sight feed the action will be constantly evident to the rider.

Our illustration shows it, as fitted to a 3 h.p. Enfield twin for preliminary experiments; it was attached to the magneto chain cover and driven off the end of the magneto shaft. There is no doubt about its efficiency; with the engine running at half throttle or less, the sight feed was dripping regularly, and at full throttle the oil came through in big spurts practically amounting to a continuous stream.

Motor cycle manufacturers can be supplied with models for testing, and Messrs. Lamplugh will soon be in a position to undertake the manufacture in large quantities if required for Government purposes.

Its simplicity, positive action, easy fitting, and small cost should appeal to all, and we may predict, with confidence, that the time is not far off when all reputable machines will carry some such type of throttle-controlled lubricator as a standard fitting.



Section and end view of the Lamplugh pump. The dotted lines indicate the extreme movements of the control.

PROPOSED ASSOCIATION OF PRIVATE OWNERS.

AS it appeared desirable that a private owners' association should be formed, a small meeting was held recently to consider the question. A subscription of 10s. for car owners and 5s. for motor cyclists was suggested, and the meeting was adjourned until January 16th, when it will take place at 2.45 p.m. at the Bedford Head Hotel, Maiden Lane, Bedford Street, Strand. Admission will be by visiting card (name and full address), and a declaration must be signed that the visitor is in no way connected with the motor trade. Those intending to be present are requested to send a postcard to Maj. H. Vane Stow, secretary *pro tem.*, 353, Strand, London, W.C.

AVERAGE PRICES.

IN giving our usual list of second-hand prices we would draw the attention of our readers to the fact that these figures represent the approximate value of ordinary standard models. Machines with electric lighting equipment, etc., do not come under this heading, as, on the score of simplicity, the detailing of extra fittings cannot be included.

Make.	Year.	H.P.	Average last week.	Latest for weekly average obtainable.
A.J.S.	1916	6 combination	—	£95
"	1915	2½ 3-speed	£40	—
"	1912	6 combination	£40	—
Allon	1916	2-stroke, 2-sp.	—	£30
Arie'	1916	5 3-sp. sidecar	—	£80
"	1915	3½ T.T.	£33	—
Bat	1912-13	6 h.p. 3-speed	£32	—
"	1912-13	8 h.p. 2-speed	£39	—
B.S.A.	1916	4½ 3-sp. chain	—	£58
"	1916	4½ 3-sp. sidecar	—	£65
"	1915	4½ T.T. clutch	—	£40
Calthorpe-Jap	1916	2½ 2-speed	—	£30
"	1915	2½ 2-speed	£23	—
Clyno	1913-14	6 h.p. comb.	£40	—
"	1912	6 combination	£36	—
Connaught	1914	2-speed, 2-stroke	£23	—
Douglas	1916	2½ W.D.	£50	—
"	1916	4 3-sp. sidecar	£70	—
"	1915	W.D. 2-speed	£45	—
"	1914	2½ 2-speed	£35	—
Enfield	1916	6 combination	£79	—
"	1916	3 2-speed	£46	—
"	1915	6 combination	—	£79
"	1914	6 combination	£58	—
Excelsior (A.)	1916	7 3-sp. sidecar	£70	—
F.N.	1914	2-speed	£28	—
H.-Davidson	1916	7-9 sidecar	£87	—
"	1915	7-9 sidecar	£65	—
Henderson	1915	sidecar	£67	—
Humber	1914	3½ 3-speed	£35	—
Indian	1916	Powerplus sidecar	—	£85
"	1915	7-9 3-sp. sidecar	£63	—
"	1915	7-9 R.R.	£40	—
"	1915	5 3-sp. sidecar	—	£58
James	1915	4½ 3-speed	£68	—
"	1914	4½ sidecar	£45	—
Matchless	1915	8 3-sp. sidecar	—	£65
"	1913	6 3-sp. sidecar	£30	—
New Hudson	1915	2-stroke	£21	—
"	1915	4 3-sp. sidecar	—	£54
New Imperial	1916	2½	£30	—
Norton	1916	3½ 3-speed	£48	—
P. & M.	1914	sidecar	£55	—
"	1913	3 speed	£40	—
Premier	1914	3½ sidecar	—	£42
Radco	1915	2-stroke	£18	—
Rover	1916	3½ T.T.	£56	—
"	1916	3½ 3-speed	£68	—
"	1915	3½ 3-speed	£38	—
Rudge	1915	5-6	£60	—
"	1915	3½ Multi sidecar	—	£45
Scott	1916	sidecar	—	£58
"	1915	2-speed	£46	—
Sunbeam	1916	8 sidecar	£100	—
"	1916	3½ 3-speed	£78	—
"	1915	3½ sidecar	£82	—
Triumph	1915	4 sidecar	£60	—
"	1914	4 sidecar	—	£45
"	1913	3½ sidecar	£37	—
Zenith	1916	8 sidecar	£80	—
"	1914	8 Gradua	£45	—
"	1914	6 Gradua	£42	—

EXPORTS AND IMPORTS.

THE chief point of interest the current figures bring to light is that the export of motor cycles for 1916 shows an increase of 1,924 over the figures of the preceding year, but during 1916 more spares and unassembled parts were sent abroad than during 1915.

As regards imports, since these have been prohibited since last March, it is not surprising that only five machines, presumably commercial vehicles, have found their way into this country during the past month.

IMPORTS.

	MONTH ENDED DECEMBER 31st.		
	1914.	1915.	1916.
Number of Machines ...	52	217	5
Value of Machines	£1,721	£9,660	£210
Value of all Parts, Accessories, Spares, etc. ...	£2,604	£13,372	£8,526

	YEAR ENDED DECEMBER 31st.		
	1914.	1915.	1916.
Number of Machines ...	2,559	4,531	1,192
Value of Machines	£93,121	£205,817	£50,478
Value of all Parts, Accessories, Spares, etc. ...	£94,540	£157,506	£125,537

EXPORTS.

	MONTH ENDED DECEMBER 31st.		
	1914.	1915.	1916.
Number of Machines ...	1,101	1,065	1,916
Value of Machines	£52,435	£57,845	£32,574
Value of all Parts, Accessories, Spares, etc. ...	£21,595	£32,700	£22,290

	YEAR ENDED DECEMBER 31st.		
	1914.	1915.	1916.
Number of Machines ...	20,877	10,927	12,851
Value of Machines	£958,473	£510,374	£595,067
Value of all Parts, Accessories, Spares, etc. ...	£346,777	£311,372	£364,485

PETROL IMPORTS.

The petrol imports for December, 1915, exceed those of December, 1916, by 8,882,524 gallons, the figures being:

	Gallons.
December, 1915 ...	12,983,382
" 1916 ...	4,100,858

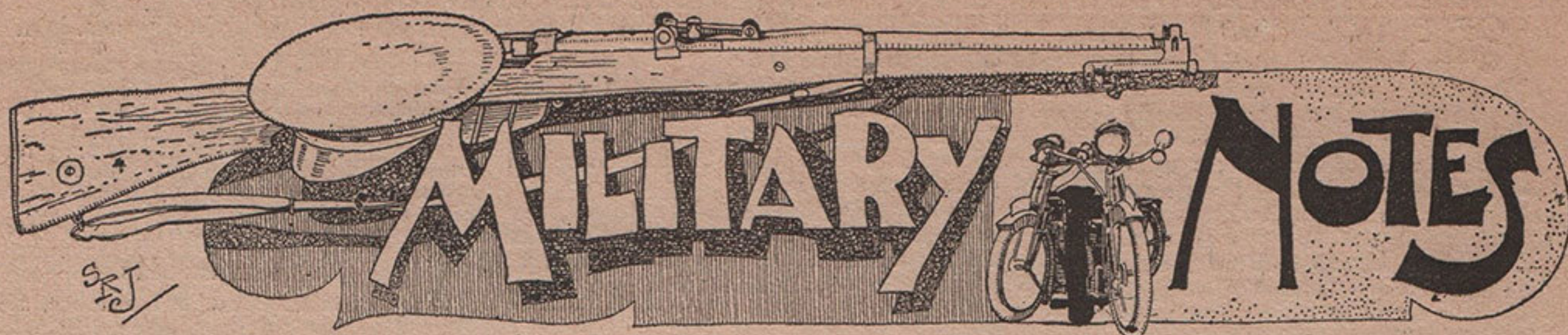
Taking the whole year, however, the petrol imports are very much higher for 1916 than for 1915, the figures showing an increase of 17,239,875 gallons.

	Gallons.
Year ended 1915 ...	144,574,891
" " 1916 ...	161,814,766



THE AUTO-PED IN ENGLAND.

The Auto-ped has arrived, and its user was soon in trouble—not of the mechanical variety! Miss Shirley Kellogg, the revue actress, took her motor scooter for a spin and was hauled up for "causing an obstruction," so the daily papers say. Most likely, however, the absence of registration letters was the real offence, as the scooter is a motor cycle within the meaning of the Act.



THE CHAIRMAN OF THE AIR BOARD.

LORD COWDRAY, who has been appointed Chairman of the Air Board, is the father of the Hon. Geoffrey Pearson, who, when acting as a motor cycle despatch rider, was killed in France in 1914 during the retreat from Mons.

RACING MOTOR CYCLIST IN EGYPT.

WE have received the following interesting letter from Cpl. T. E. Greene, whom all will remember as the dashing Irish rider of Rudge motor cycles. It will be recollected that he is the holder of the Irish End-to-end record, and his daring riding in the T.T. races, in Spain, and other places will also be recalled. Greene is now serving with the A.S.C., M.T., in Egypt.

"I see so many letters and photographs reproduced in your valuable paper every week (as we even get it so far out as Egypt), that I thought I would take the liberty of writing a few lines myself. I am head motor cycle tester and finisher at the base repair depot for all Egypt, and I can tell you it is some job, too. We have to deal with all makes and dates of machines, and have not got the very best of roads for testing purposes. Alexandria itself is all that *pavé* stuff, not at all pleasant to ride on, and the natives seem to delight in walking in the roadway. We therefore have to do any testing outside the city itself, and there one finds most of the roads—if you can call them roads—in a terrible state, with about three to four inches of sand. The

pot-holes, which are very deep, cannot be seen until close up, then one finds oneself nearly over the handle-bars owing to the crank case coming into contact with the ground. As a matter of fact, I have knocked several oil drain lugs out of the Triumph crank case owing to this, and the front stand clip of the Douglas being in the way, I always take the clip off now while testing. If the roads out here were anything like they are in England one could not ask for anything better than motor cycling, as the weather is the very best. There is no need to worry as to whether it will rain before you get back or not. We have been here now eight months, and have not had one night's rain in that time. How would that suit at home? All right for twenty-four hour runs, etc.? What?"

MOTOR MACHINE GUNNERS IN GERMAN EAST.

A MEMBER of a battery operating in British East Africa writes under date of November 7th last that the batteries are doing excellent service "out there," besides which there are a number of officers and N.C.O.'s from Bisley in the Gold Coast regiments. The writer, having recovered from malaria, was just in time to catch up his battery at Kondoa when Van Deventer moved to take the railway. This particular battery was the first unit to cross and cut the German central railway—another feather in the M.M.G.S. cap. A Douglas rider attached to the battery was the first to cross, two of the scouts, forgetting that they had been warned of mines, "scrapped" for the bridge, closely followed by armoured cars. At the time of writing, our informant was back at the workshops, having returned to have the back axle

of one of the cars straightened. This is not the first axle which has required attention, he remarks, but never a motor cycle frame. The motor cyclists in German East Africa get any amount of rough riding, he adds with emphasis.

FLIGHT-LT. GEORGE EDWARDS KILLED.

WE regret to record the death of Flight-Lt. George Edwards, who for some time was officially reported missing. He was associated with the motor cycling world for many years, and was one of the first to design a practical pillion-seat, a photograph of



which appeared in *The Motor Cycle* at the time of his attempt to place it on the market. After doing useful work as a despatch rider in Egypt, he joined the R.F.C., obtaining his wings after three months training.

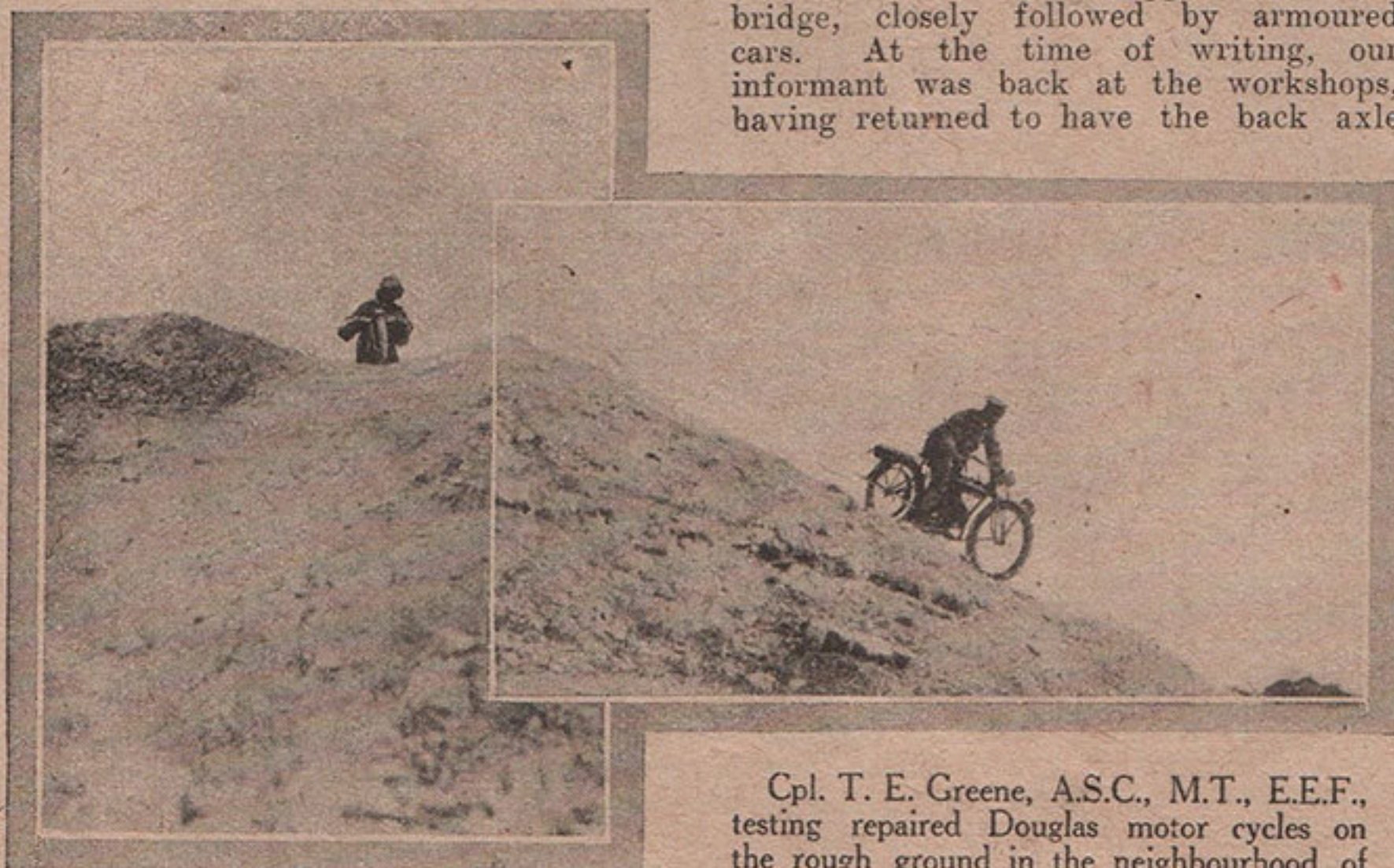
A FRENCHMAN'S APPRECIATION.

IT is not our usual practice to publish appreciations of *The Motor Cycle*, owing to lack of space, but we cannot refrain from repeating a quaint paragraph of appreciation received from an officer in the French Army:

"Your very marvellous paper *The Motor Cycle* is my sweet companion in the first line, and I read it with very great pleasure. I hope you will have a good 1917 year."

MENTIONED IN DESPACHES.

AMONG the 3,040 names of those mentioned in despatches, we note those of Capt. A. E. Davidson, R.E., D.S.O., whom we announced as having recently been promoted to the rank of Major, motor cyclist Cpl. W. Bailey, artificer motor cyclist Cpl. J. Brand, and motor cyclist Cpl. W. J. Scarff. Temp-Lt. C. J. Cadman, R.E. (Special Reserve), who was a motor cyclist with the first Expeditionary Force, has been awarded the Military Cross.



Cpl. T. E. Greene, A.S.C., M.T., E.E.F., testing repaired Douglas motor cycles on the rough ground in the neighbourhood of Alexandria. (See letter.)

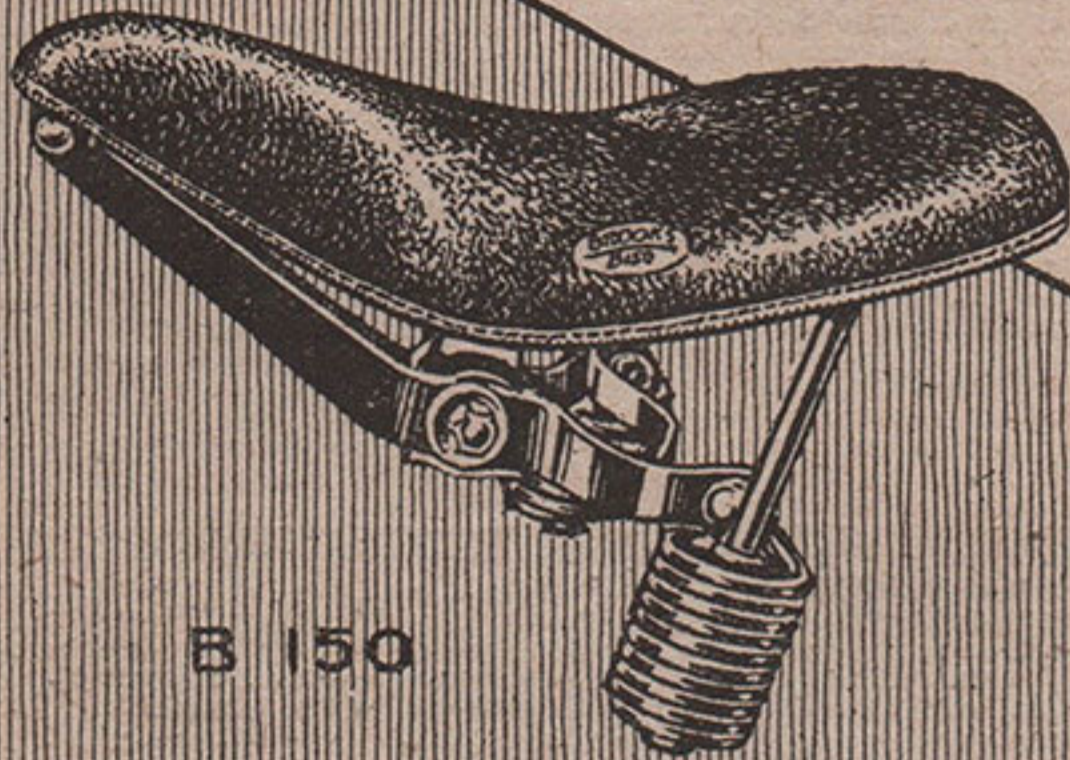
BROOKS because —

it is scientifically constructed on those lines *essential* to success, and only so as a result of our many years' experience of the motor cyclist's needs—

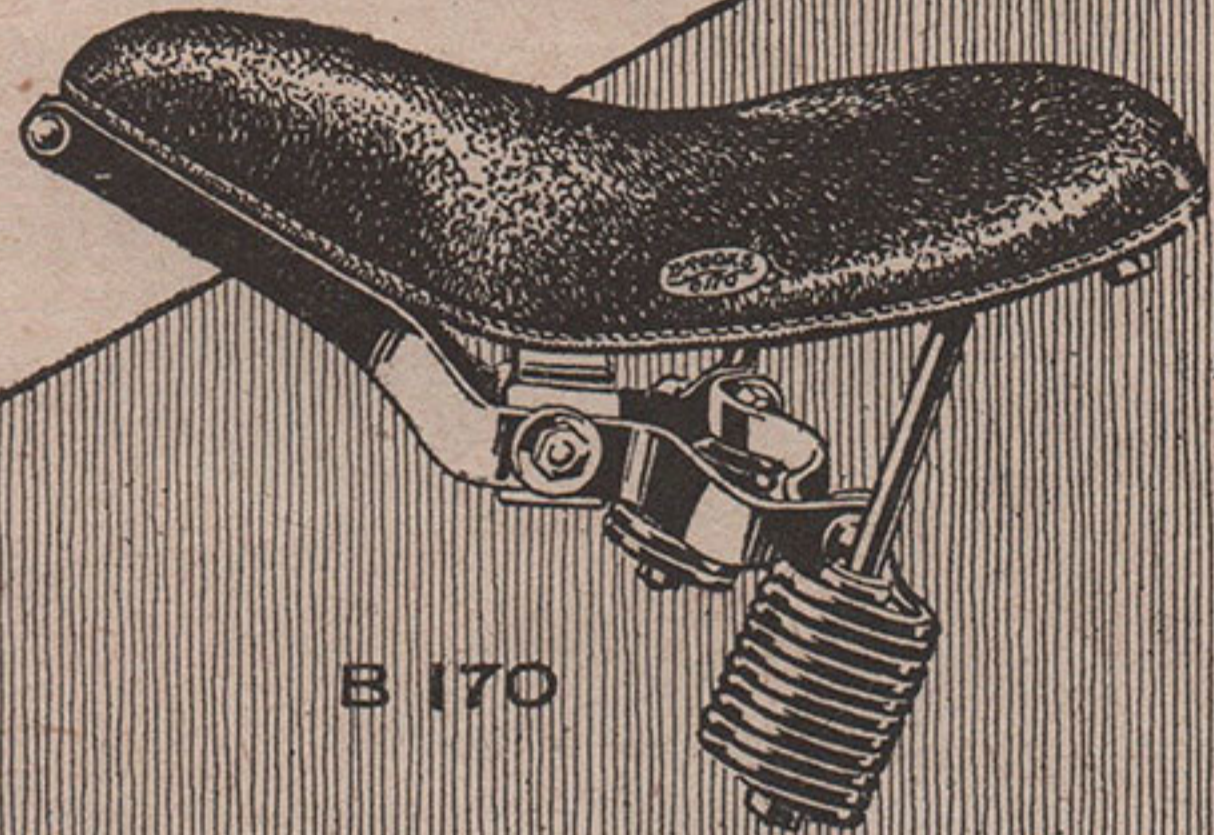
BROOKS, because—it is supreme in comfort-giving qualities and its extraordinary durability a matter of general acknowledgment—even by manufacturers of similar productions.

That is why—BROOKS!

**J. B. BROOKS & CO., LTD., 49, CRITERION WORKS,
BIRMINGHAM.**



B 150



B 170

NOTE THE INDIANS ON THE ROAD.

Indian

MOTOCYCLES

Distinguished

Fast

and

Silent

HENDEE MANUFACTURING CO.

"INDIAN HOUSE," 366-368, EUSTON ROAD, LONDON, N.W.

Telephone—Museum 1643. Telegrams—"Hendian, Eusroad, London."

AUSTRALIA 109-113, Russell Street, Melbourne.

CANADIAN WORKS 12-14, Mercer Street, Toronto.

AFRICA—

Indian House, 127-9, Commissioner Street, Johannesburg.

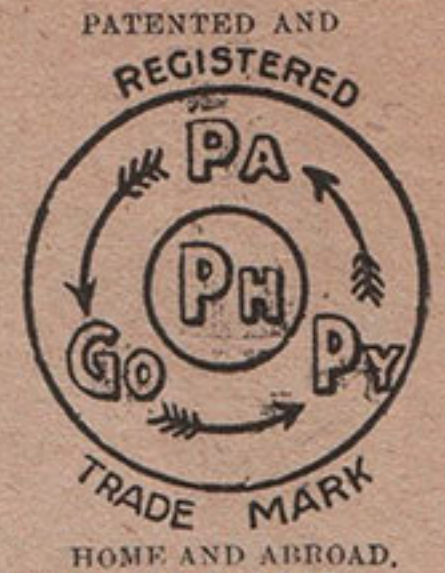
Indian House, 579, West Street, Durban.

In answering these advertisements it is desirable to mention "The Motor Cycle."

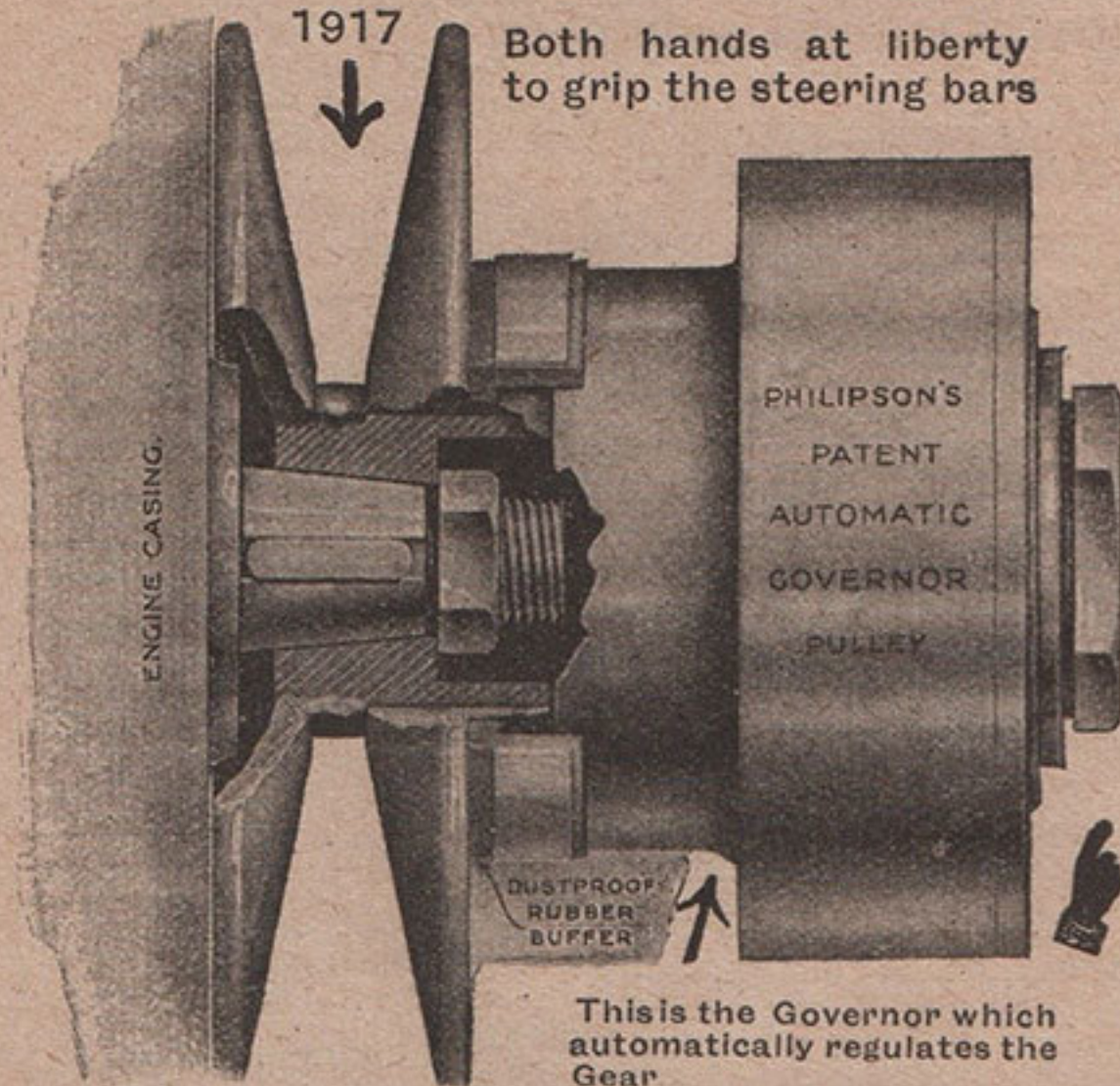
LOOK FOR THIS TRADE MARK
It is your guarantee of a genuine

As supplied
to His
Majesty's
Forces
(Motor Cycle
Section).

**PHILIPSON'S PATENT . . .
GOVERNOR PULLEY AUTOMATIC**



(No holes or grooves in pulley flanges.)



This is the Governor which automatically regulates the Gear

THE MOST RELIABLE FORM OF GEAR I HAVE MET YET.

Bulford Camp, Salisbury Plain.
Messrs. Philipson and Co., Bolton.

Dear Sirs,—I have intended writing you now for a long time re the behaviour of my pulley. You no doubt remember me as being in charge of the motor repairs at Ridges, PRESTON, and having worried you on numerous occasions for delivery.

As you know, I had a 3-speed Rudge, which I ran with a sidecar fitted, of course, with your pulley. This pulley had run a good many thousand miles on my little racing Rudge prior to being called upon to undertake serious sidecar work, but it covered a very big mileage like that. I then brought the machine here with me, and, of course, removed the hub gear, as it was absolutely superfluous, and dead weight. I used the machine in a very cruel manner, but still I never had any cause for worry regarding the old pulley. Of course, it was worn, but it still kept smiling, and now I have sold the bike I intended keeping the pulley,

but no, the purchaser had a ride, found out the merits of the "Gear," and made it a condition of purchase.

This pulley has, you will agree, had a very eventful life (my last one I lent to a D.R., and it did over twelve months at the front on a Triumph with no trouble, and it is still going strong). I have never broken anything, or had any trouble under very trying circumstances, and I only write you this as a proof beyond question that it is the simplest, most trustworthy, and most reliable form of gear I have met yet, and your claims for it are far too modest. I told you once before that what other people called "Gears" were put right in the shade by your, what you seem content to call an "automatic pulley."

Of course, this is unsolicited, and you may, if you so desire, use it as you like.

Assuring you at all times of my best efforts in your interests,
Yours faithfully, B.H.

A Philipson Pulley is **ENTIRELY FREE** from troublesome and weighty complications—only **2 working parts**—no levers, rods, wheels, etc., to worry about. Simply takes the place of the ordinary pulley (one nut only secures the complete gear to the engine)—can be fitted without any alteration to most engines in a few minutes.—Send for Booklet.

THOUSANDS IN USE—HOME AND ABROAD.

Sole Makers—**PHILIPSON & CO., Engineers, Astley Bridge, BOLTON.**

Telegrams—"Safety, Bolton." Established over 30 years. Telephone—147, Eagley.

Douglas Machines are wonderfully improved by fitting this gear—clutch models excepted.

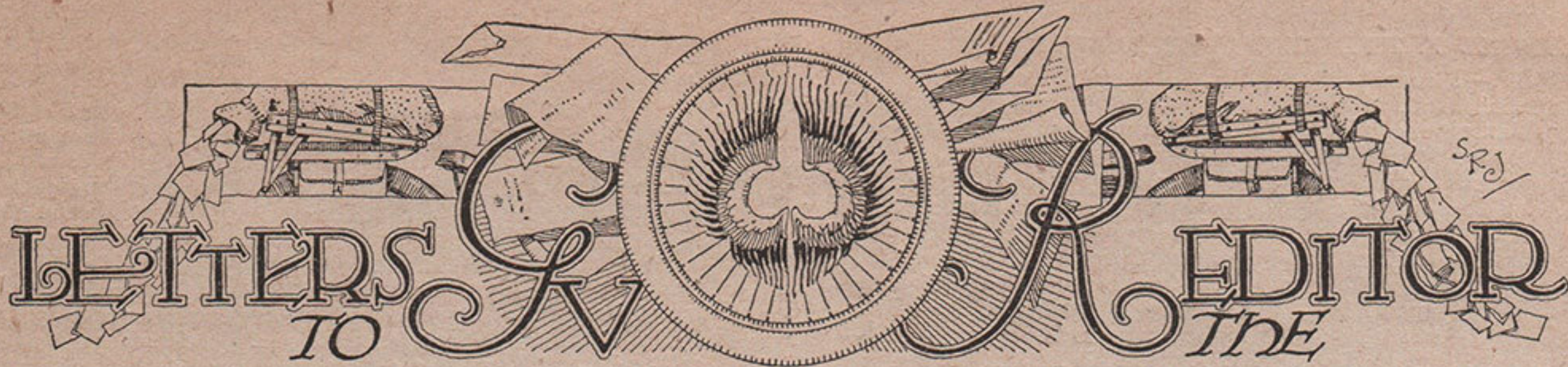
IMPORTANT NOTICE.—Prices will be advanced to £4 10 0 per gear commencing January 1st, 1917.

You'll be pleased if you first go to **JULIANS** before you decide.

SEND FOR LIST
OF
NEW YEAR BARGAINS
TO
JULIANS, 84, Broad Street, READING
Biggest Light Car and Cycle Dealers in the South.

45 YEARS' REPUTATION.

'Phone : 1024.



The Editor does not hold himself responsible for the opinions of his correspondents.

All letters should be addressed to the Editor, "The Motor Cycle," Hertford Street, Coventry, and must be accompanied by the writer's name and address.

NORTON ENGINES.

Sir,—An absurd rumour is being spread by someone, which seems to be gaining ground, for it has reached us from many parts of the kingdom, and appears to have become fairly prevalent at the Front, that we are now using another make of engine than our own (the Norton) for our machines. May we through your columns most emphatically contradict this? *The Norton original long stroke engine, designed and made by ourselves, is the only power unit ever fitted to Norton motor cycles, and we have no intention of fitting another make at any time.*

NORTON MOTORS, LTD.

AN UNUSUAL TROUBLE.

Sir,—*Re* your paragraph (January 4th, page 11), I had the same thing happen last year. The machine was an American Excelsior, the fastest and most comfortable riding machine I have owned, and I have had forty-two. This was caused through a slight seizure at over 70 m.p.h. After the engine had cooled it was perfectly free, but after about another four hundred miles an oil leakage was noticeable, which I took to be the union on front cylinder oil feed. This went on for about six weeks, and then the cylinder came in two. The makers replaced this free of charge, however.

C.E.T.

Bedford.

HOW TO CLEAN A CRANK CASE.

Sir,—Some weeks ago I saw a letter in *The Motor Cycle* from a correspondent who wished to clean his crank case and had used a strong solution of soda for the purpose.

Sodium in any form will discolour aluminium, and should not be used if the colour is to be kept good. Scrub well with a wire brush and paraffin, and then wash with a little petrol. You may then wash with a very little *soft* soap (which is not a sodium but a potassium soap), and paint over with a fairly strong solution of magnesium, such as ordinary liquid magnesia or sulphate of magnesia, commonly called Epsom salts, which will (or ought to) restore the brilliant white colour to the metal.

H. H. BROWNRIGG.

THE SCOTT SOCIABLE.

Sir,—I have for some few years been a very interested reader of *The Motor Cycle*, and would be very sorry to get out of touch with the movements of the motor cycling world, although I have never yet owned a motor cycle.

I think that Mr. Scott deserves a "pat on the back" for putting his invention before the public. His motives are clearly seen, viz., simplicity and economy. Many motor cyclists would not ride motor cycles if they could afford cars; hence the introduction of the sidecar. The sidecar has the advantage of being easily and quickly removed, but what about the driver in wet weather? The Scott Sociable, whilst being an unalterable two-seated machine, would be far and away more comfortable to at least the driver, if not the passenger, to say nothing about the protection from the elements.

Then, again, take the consumption and the tax, both of which would be about the same as any big twin combination. If the sociable were a trifle more extravagant, would not the extra comfort and protection over-balance its so-called ugly appearance?

I have no connection whatever with Mr. Scott, and, as far as I know, have never seen him, but I must express my gratitude to him (through your paper, if you will

permit) for introducing such a handy, accessible, sensible, and economical machine as the Scott Sociable, and I may say that if all goes well, after the war, I shall see about purchasing one.

HAROLD E. CARTWRIGHT.

WATER INJECTION IN A PETROL ENGINE.

Sir,—I note a letter on the above subject in *The Motor Cycle* of December 7th, signed "L.G. (R.N.)," stating that "the idea of introducing water into the cylinder of his engine was patented by Prof. Banco in Germany some years ago." As this statement is inclined to be considerably misleading, and also as the question of water injection appears to be considered something of a novelty, the following points may be of interest.

It may be said at once that the idea of water injection dates back to the earliest stages of the conception of the gas engine. Reference to "The Gas Engine Manual," by W. A. Tookey (a well-known writer on internal combustion practice), records the following instances of its use:

First, as far back as 1791, by John Barber, in an attempt to make a gas turbine; later in reciprocating gas engines by Samuel Brown, in 1823; by Hugon in 1865; and by Brayton in 1873; water being introduced partly, of course, for cooling purposes, but also for the purpose of attempting to combine the use of steam and gas expansion. Further than this, water injection has been considerably experimented with by gas engine makers in more recent times, particularly in attempts to obtain practical advantages from very high compression pressures.

The use of water injection also became quite common practice with oil engine manufacturers, compression being carried to a point where ignition became spontaneous, the actual timing of the ignition being carried out by water injection of varying amounts to suit the load prevailing; but latterly this practice has been dropped, a point of makers' advertisements being, "No water injection"! Evidently there is a fly in the ointment!

Water injection would appear to give numerous advantages, and actually does so; but, unfortunately, it brings attendant with it disadvantages that more than counteract any gains. The disadvantages follow, firstly, from the fact that water always contains impurities, which, when water is turned into steam, are left behind, forming a hard deposit on cylinders and valves, causing cutting of valve faces and endless trouble; secondly, most fuels contain a small percentage of sulphur, which, released on combustion of the fuel (my knowledge of chemistry is somewhat "rocky," but I believe this statement is *au fait*), combines with water vapours to form sulphuric acid, causing considerable corrosion to valves and exhaust connections. Perhaps some of your readers can give us valuable information on the chemical action taking place, and possibly also give us a chemical analysis of petrol and other motor fuels.

It will be seen, however, that the introduction of water into the cylinder of an internal combustion engine is attendant with difficulties which must be overcome before success is attained. Reference to periodicals and treatises on internal combustion engineering will often give much valuable information and save a good deal of "spade" work to motor cyclists who have the opportunity to experiment.

The principles involved in gas and oil engines are, of course, the same as in petrol engines, though proper consideration would need to be given to the different circumstances under which a motor cycle engine is required to work.

Workington.

W.M.

SINGLE V. TWIN-CYLINDER ENGINES.

Sir,—I cannot let the two subjects at present under discussion, viz., "Flat Twin v. Single" and "British Twin v. American Twin," slip past without saying anything. To those who contend that it is impossible to build a well-designed frame for the flat twin I reply that it is not only possible, but has been done. I admit, nevertheless, that some flat twins have not well designed frames. How a good flat twin engine can be expected to keep vertical in the frame, when it is only attached to lugs on the bottom tube, I do not know, and, in a good many machines of this type that I have seen, it has not remained upright, but has pulled itself over on the driving side. Another thing which puts me off the average flat twin is the ceaseless rattle, which seems to come mostly from the timing gear.

Sporting single every time for me, except for sidecar work! Now for the Americans.

Have any of your pro-American correspondents tried to bore holes in the American radiating fins? They will find them to be made of stuff as brittle as glass. How many of these people, who say the American has the most silent timing gear, have ridden an A.J.S. "6"? This machine has quite the most silent timing gear on the road. Usual disclaimers in large quantities.

H. ST. V. ADDENBROOKE.

Sir,—Perhaps Mr. Granville Bradshaw and "R.E.C." will modify their views that a long induction pipe does not affect carburation. I refer them to "Ixion's" tale of horizontal woe on page 553 of your issue of December 28th, 1916. His "paradox" was merely overheating due to running on an unduly bad (probably very weak) mixture. The low temperature of his long induction pipe caused condensation of the petrol on the walls of the pipe, and the resultant mixture was not at all satisfactory for running on. When sufficient fluid petrol had run into his hot inlet port and was vaporised by the heat, the temporary enriching of the mixture gave him his momentary acceleration. Lagging the pipe proved to be the cure. Precisely! His experience (I admire his fairmindedness in publishing it) comes at a very awkward moment for those who are trying to persuade us that long exposed induction pipes are an advantage. My experience this winter with a horizontal twin is precisely the same as "Ixion's," and my carburettor is *exhaust jacketed*.

Finally, if an engine can indulge simultaneously in an overheated sparking plug and a refrigerator inlet pipe, what constitutes a "hot side"?

Further in answer to "R.E.C.," the paragraph on flat twins in my article of December 14th does not apply solely to the Douglas or to any other individual make, but applies to all the flat twins I know of.

If long exposed induction pipes do not mean bad carburation, then all the tendency of modern car engine design is wrong.

I have had as much trouble out of a horizontal twin in a month as I get out of a single in a year. I mention no names.

A. LINDSAY,

CAPT. R.A.M.C.

THE FLAT TWIN AT THE BAR.

Sir,—I have read Mr. de Lissa's comments on the A.B.C. and its designer, and I should like to say a word or two in reply.

Mr. Bradshaw's sketches in the previous issue are clearly his own engines, therefore I fail to see how Mr. de Lissa can accuse Mr. Bradshaw of criticising other people's designs.

Re the "hot top" and "hot side." Could there be anything much worse than an unequally expanding cylinder? And this is what a "hot side" generally means. Personally, I shall be pleased to see some of Mr. de Lissa's shading, and then we shall see where the abnormally "hot top" comes in. To my mind, the position of the A.B.C. exhaust port and valve is very good. The valve must be cooled by the incoming charge, also the position of the exhaust exit lends itself to efficient cooling. At any rate, it is not stuck on the cylinder side, which would again give us a "hot side."

Mr. de Lissa's remarks about plug electrodes do not apply to A.B.C. engines so far as my experience goes. I used one of these engines with overhead valves in the 1913 T.T. and the practice of the 1914 race; my only plug trouble was through over-oiling. I have, however, experienced on Brook-

lands (with a well-known side-by-side valve single) the plug drooping trouble, also plugs blowing out, cylinders warping, etc.

Mr. de Lissa speaks as though 5,000 engines is a tremendous number. It would be interesting to know how many engines the A.B.C. Co. have turned out (probably it would be censored). Regarding the "rude shocks," all I can say is "wait and see," but in the meantime do not forget the A.B.C. was the first machine (500 c.c.) to do over 80 m.p.h. I also wonder how much credit was given to Mr. G. E. Bradshaw for the performance of a well-known flat twin when it broke the kilometre and mile world's records in the 350 c.c. class, and how much he designed and made.

Naturally, Mr. de Lissa calls a clever designer a man who designs an engine like the M.A.G. I do not blame him. I, as an uninterested (financially) auto engineer, consider a man who can design a power unit like the A.B.C. not only a designer, but one who knows his job and understands metallurgy.

Mr. de Lissa cannot see why such a wonderful and powerful engine as the A.B.C. should require a four-speed box, and mentions A.B.C.'s claim to 4 to 70 m.p.h. on top. Well, what an engine is capable of doing and what (in time) it would take out of the transmission, engine, and tyres, entitles a designer to give us a four or even a six-speed box, provided it is a properly designed gate change. Whilst on the subject of gear boxes, I should strongly advise several designers (both car and motor cycle) to examine an A.B.C. and try and find out how it is that a perfect change can be made under almost all conditions.

Probably Messrs. Rolls-Royce will tell Mr. de Lissa the necessity of their fitting a four-speed box to their splendidly balanced, vibrationless, six-cylinder engined car.

Yes, as your letter says, Mr. de Lissa, the A.B.C. engine is quite good—in fact, it is better designed than anything yet manufactured in the motor cycle world, and most certainly the best engineering job.

ALF. WRAY.

A CURIOUS CASE.

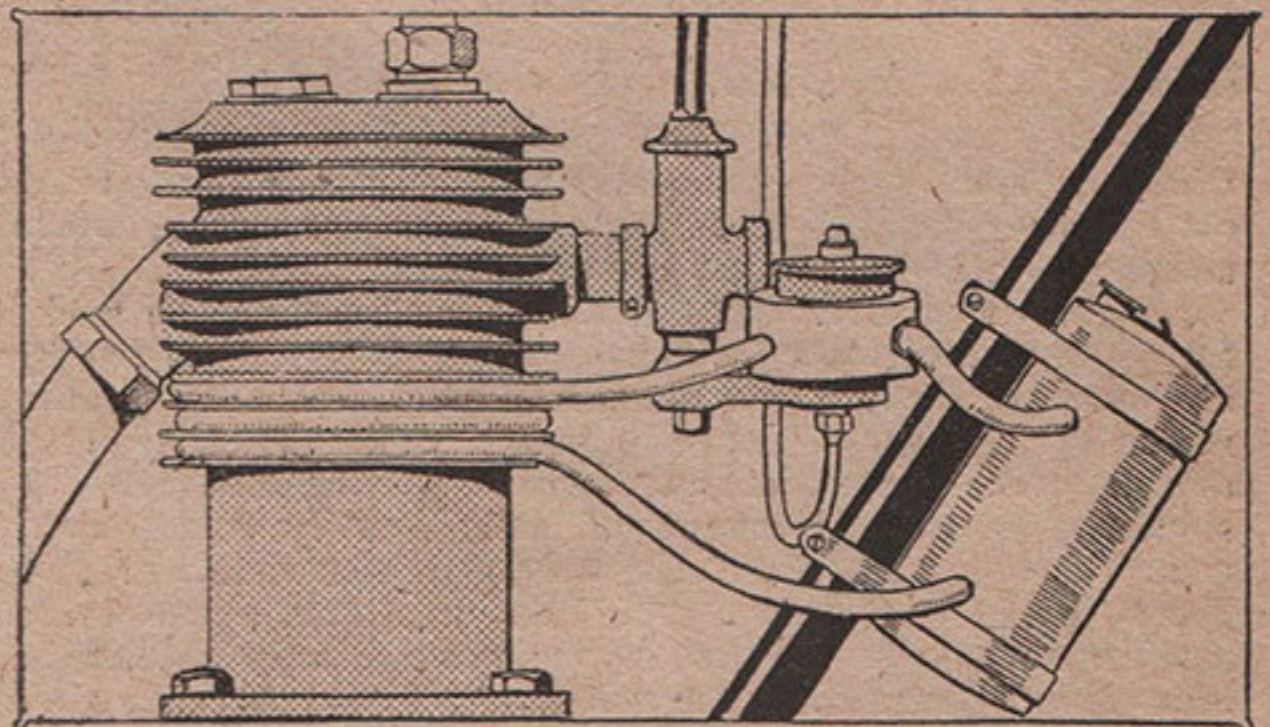
Sir,—In reply to "A Curious Case" sent by Cyclist H. J. Ives (2581), I may state I had similar trouble with a 2½ h.p. New Hudson. What I found to be the trouble was the magneto cog had slipped back a little, and the ignition became too far retarded. I tried various settings of the magneto, and found I got the best results with the magneto giving the spark when the piston was threequarters of an inch from the top (on compression). The engine will now take all the air I can give it, climb all hills on top, and never blows back.

T.C.

Falkirk.

ANOTHER SUGGESTED VAPORISER.

Sir,—Having read a lot of suggestions in *The Motor Cycle* re vaporising, I enclose a sketch of an appliance for vaporising petrol substitutes or paraffin. The water is circulated by the thermo-syphon principle. The engine can be started on petrol and turned on to the substitute when it is sufficiently warmed up. The carburettor is set into a copper



A vaporiser suggested by A. H. Burslem.

cup, forming a water jacket round it. A small can containing water could be put conveniently on the frame, with a pipe round the flanges of the cylinder to the carburettor water jacket and a pipe from the carburettor water jacket back to the water tank, and so complete the water circulation. I have not tried this idea, but I think it is a suggestion for vaporising substitutes.

A. H. BURSLEM.

QUESTIONS AND REPLIES



A selection of questions of general interest received from readers and our replies thereto. All questions should be addressed to the Editor, "The Motor Cycle," 20, Tudor Street, London, E.C., and whether intended for publication or not must be accompanied by a stamped addressed envelope for reply. Correspondents are urged to write clearly and on one side of the paper only, numbering each query separately, and keeping a copy for ease of reference. Letters containing legal questions should be marked "Legal" in the left-hand corner of envelope, and should be kept distinct from questions bearing on technical subjects.

Charging from Magneto.

? I have a high-tension magneto off a 3½ h.p. machine, and am wanting to use it for charging an accumulator, if possible. Will you please let me know if this can be done, and also how I must connect them in order to do so successfully?—G.W.

It is not in any way possible to charge accumulators from any kind of magneto. The current given by any magneto is alternating, and is, therefore, quite unsuitable.

Generator Trouble.

? On a recent night I had a ride of about twenty-six miles; there were 8° of frost and a very cold wind. About half-way I was troubled with a poor light (acetylene), which finally went out. I found a good deal of water in the tubing, which is fairly long, as I light the sidecar and tail lights from the generator. After emptying the pipes I was twice troubled with the same difficulty. I have recently fitted a length of copper tubing; this is my worst experience of water in tubing. Would moisture in the carbide condense on the copper piping in the cold and cause this quantity of water? It was cold enough to freeze the water in the generator while waiting. The other morning there must have been teaspoonfuls of water in the piping, in spite of emptying the pipes three times the previous night. I am inclined to fit a rubber gasbag at the lowest point of the tubing to catch any water which may collect. I took the generator down: the filter pad was damp, but not wet.—H.E.N

We have never heard of water condensing in the copper pipe used for acetylene gas lighting. This, we think, is more likely to be water which reaches the pipe through a fault in the generator, or from some outside cause, or through your generator at some time having been flooded. Perhaps the gas orifice is partially stopped up. See that all the orifices in the generator are quite free, and that the generator is scrupulously clean in every part. Fill your container only two-thirds full, and we do not think you will suffer from this trouble again. In very frosty weather it is advisable to leave the generator empty, and only fill up just before you require the lamp, and then with tepid water. When once the lamp has been lit the generation of the gas in the generator gives heat, and this prevents the water from freezing. Take out the filter and dry it.

Difficult Starting.

? I have a 2½ h.p. V twin motor cycle about three years old. In the cold weather I find it extremely difficult to start. I inject plenty of petrol into the compression taps, but then it takes me about fifteen minutes to start it by pedalling, even if I put more petrol in the compression taps. I should be very much obliged if you could give me a little advice.—L.C.P.

The most usual causes of difficult starting are as follow, and we think if you check all the items given you should be able to overcome the trouble: (1.) Partially choked jet. (2.) Air leaks between the carburetter and inlet ports. (Bind all doubtful joints with insulating tape.) (3.) Contact breaker points not breaking or making contact properly. The points should be clean and flat, and separate .4 mm.—roughly, the thickness of a visiting card. (4.) Plug points should be clean and free from oil, with a gap of about ½ in. (5.) See that the magneto generally is in good order, carbon brushes clean, and making good contact. (6.) See that the valves are closing properly and the valve springs strong enough. Clearance between the tappets should be .4 mm. To start, prime the engine with petrol in each cylinder to free the pistons, flood the carburetter, close the air lever, and open the throttle about a quarter. What is wanted is a strong mixture, and only a little of it. If still difficult, cut down the main air inlet.



A Herald of Spring.

Tyre Arrangement.

? I have a 6 h.p. sidecar combination, and am going to re-arrange the tyres as follows. An extra strong new cover for the back wheel. The tyre from the back wheel to be put on the front wheel, and the front wheel tyre to be put on the sidecar wheel. The back tyre has a fairly good tread on it, but the front tyre is worn pretty level, though is still a good cover. Would this arrangement be best, or would it be better to fit the tyre from the back wheel to the sidecar wheel, or is it necessary to have a good tyre on the sidecar? If so, would the front tyre do for the sidecar if I had it retreaded?—BC 1818.

The arrangement suggested is excellent. The wheel which has the easiest time of any in a sidecar combination is the sidecar wheel. It does not much matter which you put on this, provided it is fairly good. Retreading is rather a lottery.

A Case of Late Timing.

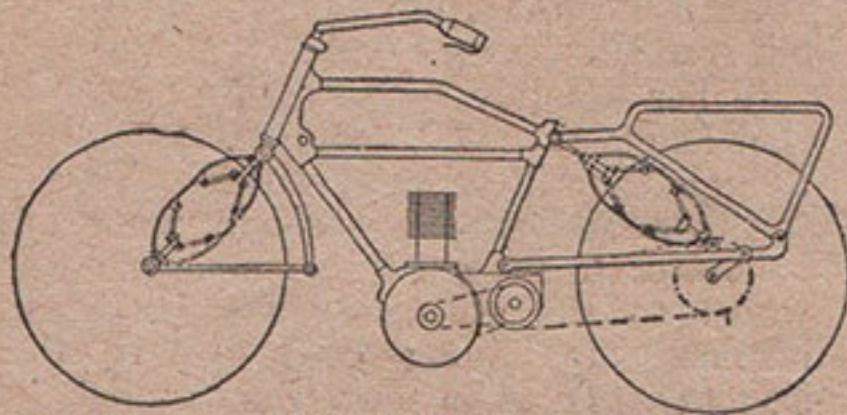
? I should be obliged if you could give me some advice about my cycle. It is a 2½ h.p. Douglas (1913). Up till a short time ago I could run with the extra air lever fully open and control speeds with the throttle. Now the machine runs excessively noisily, and has no speed. When the throttle is opened the engine only vibrates heavily. It will take hardly any extra air, and cannot be throttled down at all without shutting out air altogether. On the road if I open the air suddenly the machine leaps forward for about fifty yards, and then coughs and splutters and I am forced to shut off the air. I have ground in the valves, and compression is all right. Could you tell me where the crank case release is on this machine? The jet is quite clear. Amac carburetter.—E.N.G.

The symptoms suggest that the timing of your magneto has slipped. Retime the ignition, and make sure that both the magneto sprocket and the driving sprocket fit properly on their respective shafts. See that both main jet and spraying jets are quite clear, and that petrol is flowing freely from the tank, and also through the passage to the jet. At this time of year it is important that all air drawn into the carburetter should be heated in order to prevent freezing in the carburetter or induction pipe. The crank case release valve is through the hollow crankshaft into the timing case.



A Springing System.

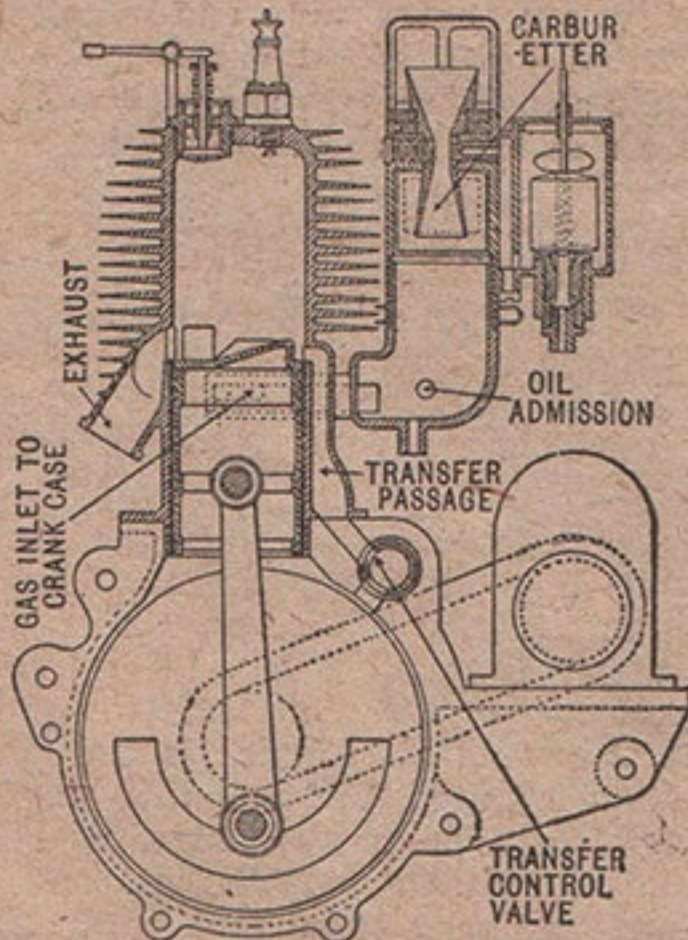
The feature of novelty is the arrangement of two leaf springs in the form of an ellipse, combined with link work, which distributes the strain throughout the length of the springs. The drawing shows back and front suspension, and in both cases it will be seen that movement of the wheel spindle tends to distort the elliptic springs. At the same time the link work is compressed in one direction and expanded in the other, increasing the resistance to movement and distributing



the strain. By this means any tendency for the springs to distort excessively at any one point is prevented, and breakage avoided.—W. J. Simpson, No. 143,931, 1915.

An Italian Two-stroke Engine.

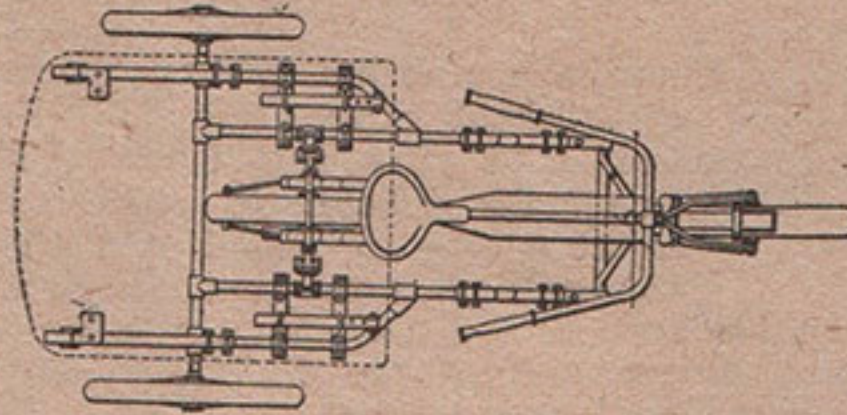
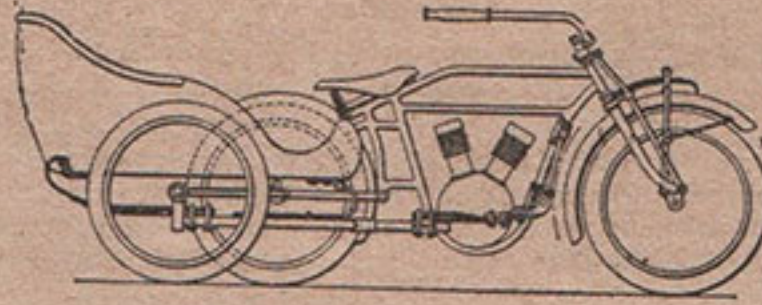
In this engine the charge is initially compressed in the crank chamber, and then passes to the cylinders by way of a transfer passage. The transfer passage is formed with a cylindrical enlargement in which is a rotatable sleeve whereby the passage of the mixture from the crank case to the cylinder can be controlled. The exhaust port is of the usual kind, and the inlet ports, which put the carburetter into communication with the crank case when the piston is at the top of its stroke, are elongated to present a large area of opening. The carburetter is



arranged in a chamber alongside the cylinder, and oil is led to this chamber so that it reaches the mixture just before it enters the crank case.—D. Ruva, No. 101,251.

A Trailer Attachment.

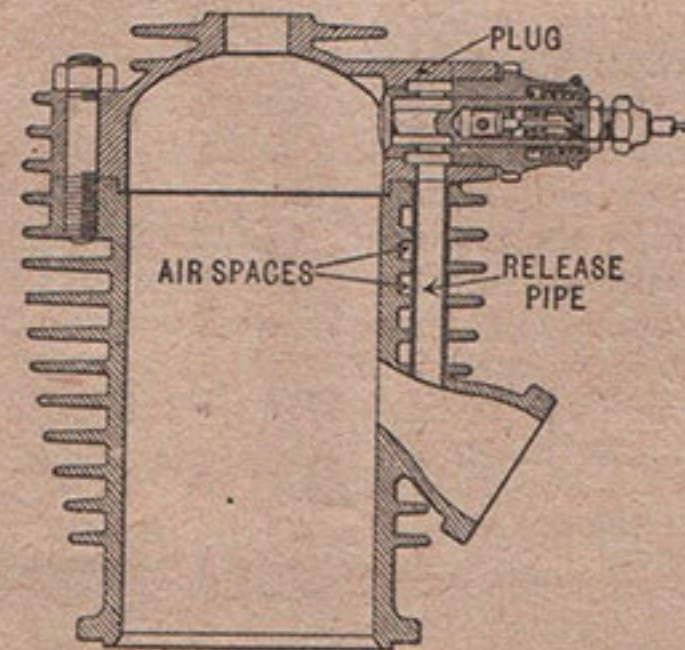
In view of the fact that a device of this nature is meeting with a certain measure of success in America, the accompanying elevation and plan of a rear passenger attachment may be of interest. The "rear car" is provided with an axle tube, from which project forwardly a pair of



longitudinal members. These extend on either side of the motor cycle, and are connected through laminated springs with the frame just in front of the engine. The "rear car" body is mounted on its frame by means of springs, so that it is insulated from road shocks. The specification describes and illustrates the invention in great detail.—O. L. Heintz, No. 16,055, 1915.

Compression Release Mechanism.

The feature of this invention is the employment of a loose pipe for conducting the gas from the combustion chamber to the exhaust passage when the control



valve is opened. The radiating fins are drilled through and the pipe inserted, the upper aperture then being plugged. An air space is left around the pipe as shown. The invention is not restricted to engines having a detachable cylinder head.—Villiers Engineering Co., Ltd., and G. Funck, No. 102,002.

DELAYS IN POSTAL DELIVERIES.

In view of depleted staffs, the curtailment of railway services, and the consequent delay in delivery of mails, readers will greatly assist by forwarding communications (including advertisements) as much as possible in advance of the dates of the issues for which they are intended.



Generosity to Soldiers Appreciated.

A gunner in the Tanks writes in appreciation of the action of the Austin Motor Co., Ltd., Prince of Wales Road, Norwich, in allowing soldiers to garage their motor cycles free of charge.

A Motor Ambulance.

The staff of the Far Eastern depots of the Asiatic Petroleum Co., Ltd., has presented a motor ambulance to the British Red Cross. The ambulance is well equipped, and capable of carrying four wounded soldiers.

Burberrys Sale.

The well-known firm of Burberrys are still holding the sale which began on January 1st of both men's and women's garments of every kind and size suitable for both winter and summer riding. Much of the stock is to be sold at one-half, and in some cases less than half, current prices. Readers are advised to write to Burberrys, Haymarket, London, S.W., for their sale list.

Lodge Sparking Plugs.

We have received from the Lodge Co., Ltd., Rugby, a useful brochure dealing with twenty differently designed plugs of their manufacture. A chapter entitled "How to Choose a Sparking Plug" is of particular interest at the moment. High speed and high compression engines are frequently fitted with plugs more suitable for low compressioned sidecar outfits, and in consequence grumbles at the efficiency of plugs are only too frequent.

Comfort Motor Cycle Accessories.

Comfort accessories for motor cycles are fairly well known to our readers, having been referred to in these columns on several occasions. These products will in future be known by the ordinary spelling of the name. The company should now be addressed, "The Comfort Motor Cycle and Accessories Co., Cookham, Berks."

The Sphinx Plug Range.

The Sphinx Manufacturing Co., of Birmingham, makers of the well-known Sphinx plugs, have issued a most attractive catalogue and price list of their plugs, a very large range of which is described and illustrated.



This publication has been much delayed owing to shortage of labour, but all applications for the booklet are being executed as quickly as possible and in strict rotation. Among the plugs illustrated is a new model designed specially for use in two-strokes or in engines which are inclined to be oily. The electrodes are protected from oil by shields.

Bowden

Wire

Ltd.



London

Victoria Rd, Willesden Junction, N.W.

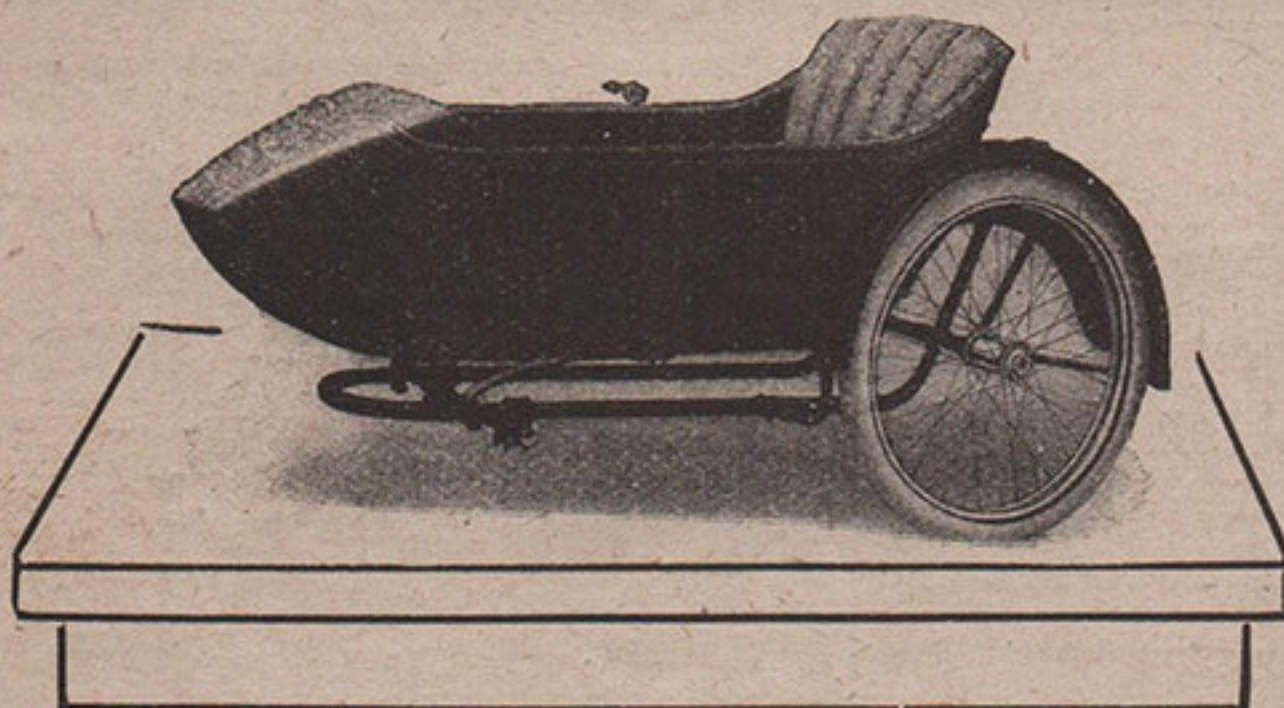
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The Canoelet STANDS ALONE

—In splendid isolation the "Canoelet" Sidecar remains the perfect example of the engineers' skill and the body-builders' craft. Synonymous with comfort, "Canoelet" means all-round sidecar satisfaction, especially for the lady who has been used to riding in a car. She will appreciate the luxury of the "Canoelet."

MEAD & DEAKIN, Tyseley, BIRMINGHAM.

I SUBMIT there is a solid reason why you should adopt a **BINKS CARBURETTER**, viz.: **YOU CUT YOUR FUEL BILL IN TWO**

if you adopt my system and use my fuel. You can, of course, use petrol or benzol without alteration.

Price of
Carburetter
complete—

49/-

plus 10% extra
war cost.

**FIT ANY
MACHINE.**

Small extra Tank
to clip on Frame,

17/6

Pipe & 3-way Tap
to enable you to
get an easy start
when stone cold,

12/6

plus 10%
war advance.



READ!

MY 3-PHASE JET DAMPING CARBURETTERS

have such perfect vaporising properties that they enable you to use fuel at **1/10** per gallon in 42-gallon casks, which you are allowed to keep on your premises. Casks **12/6** each, returnable at **10/-** each. Your engine will tick over dead slow, and pull dead slow in traffic, yet give the full power. It is almost impossible to tell you are not running on petrol at **3/-** a gallon. It cannot damage your engine or soot it up, and makes Motor Cycling possible in these times.

I give you my personal assurance of the truth of what is stated above. Please send at once for full particulars of the carburetter, and also for my Treatise on Carburation, and terms of One Month's Approval Trial.

C. BINKS, Ltd., Eccles.

MISCELLANEOUS ADVERTISEMENTS.

PRICES.

ADVERTISEMENTS in these columns—First 12 words or less 1/6, and 3d. for every two words after. Each paragraph is charged separately. Name and address must be counted. Series discounts and special terms to regular trade advertisers will be quoted on application. Postal Orders sent in payment for advertisements should be made payable to **ILIFFE & SONS Ltd., and crossed** & Co.

All advertisements in this section should be accompanied with remittance, and be addressed to the offices of "The Motor Cycle," Hertford Street, Coventry. To ensure insertion letters should be posted in time to reach the offices of "The Motor Cycle," Coventry, or London (20, Tudor St., E.C.), by the first post on Friday morning previous to the day of issue.

All letters relating to advertisements should quote the number which is printed at the end of each advertisement, and the date of the issue in which it appeared.

The proprietors are not responsible for clerical or printers' errors, although every care is taken to avoid mistakes.

NUMBERED ADDRESSES.

For the convenience of advertisers, letters may be addressed to numbers at "The Motor Cycle" Office. When this is desired, the sum of 6d. to defray the cost of registration and to cover postage on replies must be added to the advertisement charge. Only the number will appear in the advertisement. All replies should be addressed, "No. 000, c/o 'The Motor Cycle,' 20, Tudor Street, E.C."

DEPOSIT SYSTEM.

Persons who hesitate to send money to unknown persons may deal in perfect safety by availing themselves of our Deposit System. If the money be deposited with "The Motor Cycle," both parties are advised of this receipt.

The time allowed for a decision after receipt of the goods is three days, and if a sale is effected we remit the amount to the seller, but if not we return the amount to the depositor, and each party to the transaction pays carriage one way. For all transactions exceeding £10 in value, a deposit fee of 2s. 6d. is charged, when under £10 the fee is 1s. All deposit matters are dealt with at Coventry, and cheques and money orders should be made payable to Iliffe & Sons Limited.

The letter "D" at the end of an advertisement is an indication that the advertiser is willing to avail himself of the Deposit System. Other advertisers may be equally desirous, but have not advised us to that effect.

SPECIAL NOTE.

Readers who reply to advertisements and receive no answer to their enquiries are requested to regard the silence as an indication that the goods advertised have already been disposed of. Advertisers often receive so many enquiries that it is quite impossible to reply to each one by post.

MOTOR CYCLES FOR SALE.

A.B.C.

A.B.C. for Sale, 1914, in fine condition, lamps and speedometer, new tyres.—Box 615, c/o *The Motor Cycle*. [X4144]

Abingdon.

1914 Abingdon, 3-speed, T.T. model; £34.—Ross, 86, High Rd., Lee. [6786]

A.J.S.

1914 2 1/2 h.p. A.J.S., 3-speed, lamps, and speedometer; £40.—Fryers, Hereford. [X4051]

A.J.S. Spares—prompt delivery.—Cyril Williams, A.J.S. Agent, Chapel Ash Depot, Wolverhampton. [X4090]

A.J.S., 1913, 6h.p. twin, and coachbuilt sidecar, in perfect condition; £45.—Albon's, 119, Ripple Rd., Barking, Essex. [6914]

A.J.S., 1916 1/2, 2 1/2 h.p., 3-speed, kick start, hand clutch, many extras, little used, condition as new; £50, no offers.—Bradbury, Heath Grove, Buxton. [X4217]

A.J.S., 1915, 3-speed, kick start, hand clutch, new tyres, all accessories; £44/10; deferred payments, exchanges.—Lamb's, 151, High St., Walthamstow, and 50, High Rd., Wood Green. [6880]

A.J.S. Special New Year Bargain.—Late 1916 2 1/2 h.p., single-cyl., 3-speed, semi T.T. bars, quick detachable back wheel, handle-bar clutch, kick starter, etc., only slightly soiled; £52.—The Premier Motor Co., Aston Rd., Birmingham. [6832]

HOW YOU CAN TELL!

When smiles of satisfaction
Crown the first day's test,
And miles of even running
Prove you've got the best;
When the engine never falters,
Though the speed be what
you like—
The explanation's simple—
"You've bought a Godfrey's
Bike."

Attention to details, careful testing and adjustments to both new and second-hand machines, a strict rule to let nothing go out (irrespective of price) which would not uphold the reputation of the Firm—and you have the reasons for the ever-increasing popularity of GODFREY'S.

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In Stock include—

B.S.A., ROVER, JAMES,
ZENITH, ENFIELD,
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If you cannot pay our Showrooms a visit, write for our full list of new and second-hand machines.

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MOTOR CYCLES FOR SALE.

A.J.S.

A.J.S. 1912 6h.p. Twin Combination; £40.—Tuke and Bell, Ltd., Motor Dept., Carlton Engineering Works, High Rd., Tottenham, N. [4915]

A.J.S., 1916, 2 1/2 h.p., 3-speed sporting model, used 500 miles, pretty and perfect little specimen, complete with Lucas head lamp, Lucas horn, tail lamp, speedometer and spares; cost £70; accept £55.—Layton's Garage, Bicester, Oxon. [7066]

Alldays.

ALLON, 1916 1/2, 2-speed, 2-stroke, as new, spares, accessories; £35.—French, Seaford. [7040]

RIDER TROWARD, 78, High St., Hampstead.—1916 Alldays Allon, 2-speed; 29 gns. [6967]

COLMORE Depot, 31, Colmore Row, Birmingham, can supply immediately all models of Alldays Allon. [0796]

1916 2-speed Alldays Allon, brand new, shop-soiled, not scratched; £40 cash.—Jones, Garage, Broadway, Muswell Hill. [7084]

NEW Allons, 2-speed, 2-stroke, 2 1/2 h.p., 1917 models; £42; easy terms 2% extra, or exchanges arranged.—Wauchope's, 9, Shoe Lane, London. [6946]

ALLONS.—All models actually in stock, £37/18 to £47/5; exchanges, deferred payments.—Lamb's, 151, High St., Walthamstow, and 50, High Rd., Wood Green. [6877]

1915 Countershaft Alldays, 4h.p., 3-speed, clutch, complete with lamps, horn, etc., footboards, reliable machine; £45; exchanges.—Newnham, 223, Hammersmith Rd., W. 'Phone: 80. [6982]

Ariel.

1917 Ariel, 3 1/2 h.p., in stock; £65/10.—Ross, 86, High Rd., Lee. [6783]

ARIEL, 3 1/2 h.p., latest 3-speed model, actually in stock.—Crow Bros., Guildford. [6366]

ARIEL, 3 1/2 h.p., Bosch, B. and B., etc., low and perfect; £15.—Smith, 199b, King St., Hammersmith. [6999]

3 1/2 h.p. Ariel, 1912, fine condition, complete, with mechanical horn; £12.—21, Derby Rd., West Green. [7013]

RIDER TROWARD, 78, High St., Hampstead.—1913 Ariel variable gear, re-enamelled, fast; 21 gns. [6978]

ARIEL, 3 1/2 h.p., semi-T.T., with variable pulley gear, fast, and in excellent condition; £22.—Layton's Garage, Bicester, Oxon. [7069]

COLMORE Depot, 31, Colmore Row, Birmingham, have in stock for immediate delivery all models of Ariel motor cycles, with or without sidecars. [0797]

1917 New Ariels in stock, 3-speed countershaft gear, clutch, and kick start, chain-cum-belt drive, £65/10; easy terms 2% extra, or exchange arranged.—Wauchope's, 9, Shoe Lane, London. [6943]

1912 1/2 Ariel, 3 1/2 h.p., and sidecar, decompressor, variable gear, drip feed, spring seat-pillar, lamps, tools, spares, condition as new; any trial; bargain, £27.—Woodcock, 756, Romford Rd., Manor Park, Essex. [6958]

I CAN Give immediate delivery of 1917 5-6h.p. Ariels, 3 1/2 h.p. Ariels, solo or combinations; also 1916 5-6 h.p. combination, as new, guaranteed, £80; exchanges or deferred payments.—Jones, Garage, Broadway, Muswell Hill. [7078]

ARIEL and Coachbuilt Sidecar, late 1915 model, 3 1/2 h.p., 3-speed, countershaft driven, clutch, decompressor, kick starter, speedometer, lamps, spares, etc., only done 3,000 miles, owner going to Front, only reason for selling; £50, or very near offer accepted.—Box L2,884, c/o *The Motor Cycle*. [7106]

Atilier.

ATILIER, 3 1/2 h.p., free engine, Bosch, B. and B.; £8.—21, Fordel Rd., Catford. [X4088]

Auto-Wheels.

AUTO-WHEEL, B.S.A. Model de Luxe, in perfect order; £10.—Slade, Nayland, Colchester. [X4174]

AUTO-WHEEL, 1915, like new; £10/10.—W. and H. Motor Co., Ltd., 287, Deansgate, Manchester. [6592]

AUTO-WHEEL, B.S.A. De Luxe, good condition, Hammond shock absorber fitted; £5/15.—Mead, Draper, Amersham, Bucks. [6837]

Bat.

BATS.—Latest 4-5h.p. sporting model in stock, 2 speeds, etc.; £63/5.—Below.

BAT, 5-6h.p. sporting model, 3-speed hub gear, usual accessories, good condition; £32.—P. J. Evans, John Bright St., Birmingham. [X4162]

1914 Bat, 4-5h.p., 2-speed, countershaft, very fast; £34.—Ross, 86, High Rd., Lee. [6780]

NEW Bats from stock, 2-speed gear models, sole mounts; £63/5.—Wauchope's, 9, Shoe Lane, London. [6945]

BAT-J.A.P., 5-6h.p., 1913 1/2, 3 speeds, clutch, T.T. model; £33; exchange combination.—Saul, Tisbury, Salisbury. [7046]

MOTOR CYCLES FOR SALE.

Bat.

1912 Bat-Jap, 8h.p., free engine, splendid condition; no use to owner; £12.—Howard, 61, Hyde Rd., West Gorton, Manchester. [6852]

Bradbury.

1912 3½h.p. Bradbury, good condition throughout; £16.—Haines, 8, Adelaide Sq., Bedford. [X4153]

1914 Bradbury, clutch model, splendid condition; £25, bargain, or lightweight and cash.—Wyatt, Hunstanton. [X4018]

BRADBURY, 4h.p., 1912, free engine, excellent running order; bargain, £14.—1, St. George's Rd., Folkestone. [X4218]

BRADBURY, 1913, Sturmev-Archer 3-speed, 1916 B. and B., extra heavy tyres, lamps, etc., complete; £28.—Mills, Lordswood, Southampton. [6903]

BRADBURY, 3½h.p., with sidecar, Bosch mag., Binks carburetter, N.S.U. 2-speed, free engine, new tyres, good running order; £30.—Oliver, Clifton, Biggleswade, Beds. [6940]

BRADBURY, 4h.p., 3-speed, coachbuilt sidecar, free engine, new tyres, just overhauled; genuine bargain; must be sold; what offers?—Apply, C. Wood, Forest Brickfields, Coopersale, Essex. [X4151]

Brough.

1914 Brough, T.T., 3½h.p., 2-speed, opposed twin; £36.—Ross, 86, High Rd., Lee. [6789]

BROUGH, late 1915, 3½h.p. flat twin, T.T. model, 2-speed countershaft, very fast, little used, perfect condition, all accessories; £45.—Apply, 60, Marine Parade, Sheerness. [X4205]

OWNER Going Abroad, offers for quick sale 1915 Brough, 3½h.p., excellent condition; sacrifice £25.—Parkinson, 33, Westbury Rd., Woodside Park, North Finchley. [X3917]

Brown.

RIDER TROWARD, 78, High St., Hampstead.—1912 3½h.p. T.T. Brown, re-enamelled, last; 15 gns. [6974]

1913 Brown-Precision 2½h.p. Lightweight, Bosch, B. and B., Dunlop tyres, good condition; £16.—Palmer, 45, Coral St., Waterloo Rd., S.E. [6823]

3½h.p. Brown, Bosch, B.B., good running order; £6/10; appointment by post.—Private Henson, c/o 113, Coulsden Rd., Caterham, Surrey. [7010]

B.S.A.

B.S.A., 1917 models H and K, with sidecars, in stock.—Moss, Wem. [X4190]

COLMORE Depot, 261, Deansgate, Manchester, for immediate delivery of B.S.A. [0798]

B.S.A., 1913, 2-speed, exceptionally fine order, perfect; £30.—Wallis Motors, Hereford. [6872]

B.S.A., 3½h.p., 1915, T.T., very fast, new; £40.—9, The Terrace, Hampton Wick, Middlesex. [6925]

B.S.A., 1912, good condition, fast, good tyres; £17, no offers.—A. Beck, 9, Hedon Rd., Hull. [6915]

NEW B.S.A., chain drive, in stock; exchanges quoted; £66.—Motor Exchange, Horton St., Halifax. [6661]

B.S.A., 4½h.p., chain drive, 1916, sidecar, screen, lamp; £64.—W. Fuller, Baker, Semley Place, Ebury Sq., S.W. [6802]

B.S.A., 4½h.p., 1914, chain drive, 3-speed, countershaft gear, B.S.A. Canoelet sidecar; offer.—Walshams, 60, Doughty St., W.C. [6812]

B.S.A., 1916, 4½h.p., 3-speed, kick starter, speedometer, horn, lamps, original tyres, unused since July; £55.—H. Jones, Anstey, Coventry. [X4215]

B.S.A., 1913-14, 2-speed, free engine, 3½h.p., Spur sidecar, lately overhauled by makers; bargain; 35 gns.—Owner, 27, St. John's Rd., Putney. [6919]

1917 B.S.A. in stock. Catalogues free. Spare parts per return. 1in. belts, as fitted by makers, 8/6, post paid.—Albert J. Pitts, Redditch. Tel.: 91. [X0529]

B.S.A., model H, 3-speed, chain drive, with superior C.B. sidecar, lamps, horn, tools, etc., a very fine outfit; 60 gns.—Layton's Garage, Bicester, Oxon. [7068]

1913 B.S.A. 2-speed, two in stock, belt drive, also one chain drive, £30 each; deferred payments arranged.—Jones, Garage, Broadway, Muswell Hill. [7086]

B.S.A., 1914, 3½h.p., with lamps, tools, and speedometer, in good condition, a fast machine; £30, or good offer.—Tebb, Corpus Christi College, Cambridge. Tel.: 774. [6819]

B.S.A., 1913, 3½h.p., Grado Multi, large head lamp, rear lamp, speedometer, horn, auxiliary tank connected to carburetter; £30.—Box L2,882, c/o The Motor Cycle. (D) [6830]

1917 B.S.A.'s, all models from absolute stock; cash, deferred, or exchanges, Douglases preferred.—Jones, Garage, Broadway, Muswell Hill. Phone: Hornsey 2562. [7079]

B.S.A., 1914, 3-speed, in good running order; any trial; owner having no further use for same; £40, or near offer.—F. Keel, 4, Range Villas, Shepperton-on-Thames, Middlesex. [7031]

1917 B.S.A.'s, models H and K absolutely in stock; also 1914 4 months' old model K, with No. 1 B.S.A. sidecar, all lamps, etc., a rare bargain, £67/10; deferred payments, exchanges.—Jones, Garage, Broadway, Muswell Hill. [7085]

MAUDES MOTOR MART SECOND-HAND BARGAINS

SIDECAR OUTFITS.

- TRIUMPH, 3½ h.p., 2-speed countershaft, Sidecar ... £32
- INDIAN, 1913, 7 h.p., coach-built Sidecar, 2-speed ... £39
- ZENITH, 1914, 6 h.p., countershaft clutch model ... £60
- RUDGE, 1913, 5-6 h.p. Multi, with Rudge Sidecar ... £46
- ENFIELD, 1912, 6 h.p., 2-speed, twin, Enfield Sidecar ... £29
- RUDGE, 1913, 3½ h.p. Multi, coach-built Sidecar ... £33
- SCOTT, 1914, 3½ h.p., 2-sp., and Scott sidecar chassis ... £47
- ZENITH, 1915, 3½ h.p., twin, clutch, and C.B. Sidecar ... £49
- P. & M., 3½ h.p., 1913, 2-speed, C.B. Sidecar ... £46
- JAMES, 4½ h.p., 1914, 3-speed, Empress Sidecar ... £55
- HUMBER, 1915, 6 h.p., horizontal twin, like new, speedometer ... £78

LIGHT CARS.

- G.W.K., 1914, 8 h.p., just re-painted and overhauled ... £120
- G.W.K., 1915, 8 h.p., just re-painted, detach. wheels ... £165
- KNIGHT, 1914, 11.9 h.p., sporting body ... £145
- SINGER, 1914, 10 h.p., dynamo lighting ... £195
- SINGER, 1913, 10 h.p., 5 lamps, just being overhauled ... £135
- SINGER, 1913 (late), 5 lamps, dickey ... £140
- HILLMAN, 1915, 9.5 h.p., speedometer, little used ... £205
- MATHIS, 1914, 15 h.p., 5-seater, dynamo ... £325
- DAIMLER 38 h.p. ½ Landulette, C.A.V. set ...
- SWIFT, 1915, 10 h.p., dynamo, like new ... £250
- BELSCO, 1912, 10-12 h.p., dynamo, being re-painted ... £170
- CALCOTT, 1915, 10 h.p., dynamo, just overhauled ... £265
- BRISCOE, 1916, 15 h.p., 3-seat clover-leaf, as new ... £190
- MAXWELL, 1911, 18 h.p., 4-seater, hood and screen ... £40
- FORD, 1913, 20 h.p., 5-seater, windscreen ... £60

SOLO MOUNTS.

- DOUGLAS, 1915, 2½ h.p., 3-speed, like new ... £54
- DOUGLAS, 1915, 2½ h.p., 2-speed, model V ... £48
- DOUGLAS, 1914, 2½ h.p., 2-speed ... £45
- DOUGLAS, 1914, 2½ h.p., 2-speed, and kick-start ... £46
- DOUGLAS, 1914, 2½ h.p., 2-speed, Lucas horn ... £47
- TRIUMPH, 1912, 3½ h.p. Standard touring model ... £19
- TRIUMPH, 1912, 3½ h.p., clutch model, Bosch ... £28
- TRIUMPH, 1914, 4 h.p., 3-speed, Bosch ... £48
- TRIUMPH, 1912, 3½ h.p., Standard touring ... £26
- TRIUMPH 1913, 3½ h.p., 3-speed, all accessories ... £32
- INDIAN, 1914, 7-9 h.p., clutch model, speedometer ... £40
- INDIAN, 1915, 5 h.p., 3-speed, excellent condition ... £48
- INDIAN, 1914, 7-9 h.p., 2-speed, spring frame ... £44
- INDIAN, 1914, 7-9 h.p., T.T. model, very fast ... £41
- B.S.A., 1914, 4 h.p., 3-speed, all chain ... £47
- B.S.A., 1916, 4½ h.p., 3-speed, mod. K., speedometer ... £60
- ENFIELD, 1911, 2½ h.p. twin, 2-speed, chain drive ... £20
- ENFIELD, 1911, 2½ h.p. twin, Grado gear ... £14
- HUMBER, 1914, 2½ h.p. twin, light touring machine ... £18
- HUMBER, 1914, 3½ h.p. 3-speed, water-cooled ... £38
- CALTHORPE, 1914 (late), 2½ h.p., 2-sp., 2-str., runs on paraffin ... £22
- NEW HUDSON, 3½ h.p., 3-speed, only done 1,000 miles ... £30
- IVY, 1915, 2½ h.p., 2-stroke, Senspray carburetter ... £16
- RUDGE Multi, 1913 (late), 3½ h.p., Senspray, very fast ... £33
- REX, 1914, 4 h.p., 2-speed, and handle start, suit sidecar ... £28
- BROWN, 1911, 3½ h.p., magneto, B. and B., good tyres ... £14
- PREMIER, 1913, 2½ h.p., single-cyl., fine lightweight ... £14
- ALLON, 1915, 2½ h.p., 2-stroke, 2-speed, little mileage ... £30
- F.N., 1912, 2½ h.p., 2-speed, shaft drive ... £17
- LEVIS, 1913, 2 h.p., 2-stroke, countershaft (no gear) ... £18
- RADCO, 1916, 2 h.p., single-speed, almost new ... £20

Machines starred (*) are complete with lamps, horn, etc. 1914 and 1915 DOUGLAS MACHINES bought for Spot Cash

NEW 1917 MODELS.

- ROYAL ENFIELD 6 h.p. Combination ... £94 10
- ROYAL ENFIELD, 3 h.p., twin, 2-speed ... £57 15
- ROYAL ENFIELD, 2½ h.p., 2-speed, 2-stroke ... £44 2
- B.S.A., 4½ h.p., 3-speed, all-chain, H, 1917 model ... £66 0
- B.S.A., 4½ h.p., 3-speed, belt, K, 1917 model ... £64 0
- B.S.A., 3½ h.p., Model D, T.T. ... £52 10
- ROVER, 1917, 3½ h.p., 3-speed, solo ... £69 10
- ROVER, 1917, 3½ h.p., T.T., Philipson pulley ... £61 10
- LEVIS, 2½ h.p., single-speed, Popular model ... £32 0
- COVENTRY EAGLE, 2-stroke, de luxe ... £37 15

A Fe.v 1916 ROYAL RUBYS to Clear. Send for Lists and Prices.

MAUDES MOTOR MART 100 & 136 Gt Portland St. London W. Telephone -552 Mayfair Telegrams -Abacate Wesdo

MOTOR CYCLES FOR SALE.

B.S.A.

B.S.A., model K, 1915, 4½h.p., 3-speed, with almost new semi-sporting coachbuilt sidecar, lamp, horn, etc., overhauled throughout, very sound outfit; £58.—Layton's Garage, Bicester, Oxon. [7067]

B.S.A. Latest New Models can be delivered from stock: Chain drive model H, 3-speed countershaft gear, £66; chain-cum-belt model K, £64; Montgomery sidecars in stock to fit from 10 gns.; your present machine can be taken as part payment.—Elce and Co. B.S.A. Agents, 15-16, Bishopsgate Av., Camomile St., E.C. [0551]

4½h.p. 1915 B.S.A., countershaft, 3-speed gear and 4 kick start, free engine, fitted with a handsome Middleton coachbuilt sidecar, complete with all accessories, £60, guaranteed; also a solo B.S.A., same condition and model, 50 gns.—Wauchope's, City Agents for B.S.A. machines, 9, Shoe Lane, London, E.C. [6948]

B.S.A.'s.—Both 1917 models actually in stock; deferred payments, exchanges; good prices paid on second-hand up-to-date machines; also in stock, two 1916 model H's, one with Swan sidecar, other with Phoenix, all accessories, condition A1, £68/10 each.—Lamb's, 151, High St., Walthamstow, and 50, High Rd., Wood Green. Tels.: Walthamstow 169, and Hornsey 1956. [6876]

Calthorpe

CALTHORPE-J.A.P., 1916, 2-speed, with lamp, horn, ridden 400 miles only; £35/10.—Lamb's, 151, High St., Walthamstow. [6882]

CALTHORPE Junior, 2-speed, excellent condition, easy starter; bargain, £10, no offers.—Harrison, 55, High St., Eastleigh. [7014]

CALTHORPE Junior, 1914, 2h.p., 2-speed, requires new cylinder and camshaft; 5 gns.—Cockburn, Dorisdene, Flower Lane, Mill Hill, N.W. [6822]

COLMORE Depot, 31, Colmore Row, Birmingham, have in stock all models of Calthorpes for immediate delivery; also at our Manchester Depot. [0799]

CALTHORPE-J.A.P., 2½h.p., Enfield 2-speed, perfect, almost new, enamel and plate unscratched; bargain, £26/10.—Phillips, Tobacconist, Ware Herts. [6900]

1916 Calthorpe, 2½h.p. J.A.P., Enfield 2-speed gear, horn, lamp, accessories, run only 500 miles; £26.—Urquhart, 49, Hurlingham Court, Putney Bridge. [7030]

CALTHORPE-J.A.P., 1916, 2-speed, free engine, clutch, equal new, accessories; trial; bargain, £27; owner enlisted.—174, Barcombe Av., Streatham Hill, S.W. [6864]

NEW Calthorpes on easy terms, 2% only extra charge: Latest lightweights, 2½h.p. J.A.P. engines, 2-speed Enfield gears, sloping top bars, 36 gns.; also 2½h.p. 2-stroke models, £28/17/6.—Wauchope's, Calthorpe's appointed agents, 9, Shoe Lane, London. [6944]

Campion.

CAMPION-J.A.P. 1916 Combination, Bosch mag., fitted electric light, only slight use.—Apply, Box 613, c/o The Motor Cycle. [X4094]

4½h.p. 1914 All-black Campion-Precision, 2 speeds, 4 grey Swan sidecar, splendid condition; £60.—Bancroft, 29, Belvoir Rd., Coalville. [X3919]

Chater-Lea.

CHATER-LEA 5-6h.p. Twin, £15; sidecar, £3.—Miss May, 66, Greyhound Lane, Streatham, S.W. [6793]

8h.p. No. 7 Chater-Lea Coach Combination, lamps, spare chains, 700x80 tyres, speedometer; £45.—F.W., 31, Relf Rd., Peckham Rye. [X4040]

Chater-Lea-Precision.

1916 3½h.p. Precision Engine, Chater-Lea frame, T.T. model, very sporty and brand new, never been ridden; a real good, cheap lot, £27/10; first viewer will purchase.—Jones, Garage, Broadway, Muswell Hill. [7090]

Chater-Rex.

CHATER-REX, 3½h.p., low built, spring forks, C.A.V. mag., B. and B. carburetter; £10.—388, Clapham Rd., S.W. [6860]

Clyno.

CLYNO 1912 6h.p. Combination; £35/10.—Motor Exchange, Horton St., Halifax. [6663]

CLYNO, a beauty, Canoelet sidecar, enamelled to match, almost new; £42.—Bunting, Harrow. [6775]

CLYNO, 1913-14, 6h.p., 3-speed countershaft, chain drive; £39/10.—Motor Exchange, Horton St., Halifax. [6662]

Connaught.

CONNAUGHT, 1914, standard model, lamp, horn, spares, etc., sound condition; £17.—Low, 36, Kenilworth Rd., Ealing. [X3932]

CONNAUGHT, 1916, fitted Dunlop tyres and belt, guaranteed perfect order; £20.—Firth's, Woodbridge Rd., Moseley, Birmingham. [X4197]

BIRMINGHAM Agent, P. J. Evans, John Bright St.—1917 models of the famous Connaught 2-stroke, standard 2½-3h.p. models, either solo or with sidecar; miniature models, single or 2-speed countershaft gear; prices from 27 gns. [X4166]

Coventry Eagle.

COVENTRY Eagle, 1916, 6h.p., 3-speed countershaft, coach sidecar, and accessories; cost £100, little used, £69/10.—Motor Exchange, Horton St., Halifax. [6665]

MOTOR CYCLES FOR SALE.

De Dion.

DE DION, 2½ h.p., B.B., new heavy rubber studded Kempshall back, accumulator, in good running order, £7, or exchange for late Auto-Wheel, must be in good working order and condition.—Chandler, Kalabani, Ramsgate Rd., Margate. [6835]

Douglas.

1911 Douglas, splendid condition, tyres good; £12.—101, Tooting Bee Rd., S.W. [6859]

DOUGLAS, late 1913, kick start, little used, accessories, spares.—C. White, West Mersea. [6803]

DOUGLAS, 1914, perfect condition, fully equipped; £37/10.—S. Alderton, 426, Strand, W.C. [6894]

DOUGLAS, 1914, 2-speed, T.T., Lucas lamps and horn; £32.—2, Honeywood Rd., Colchester. [7028]

1912 Douglas, 2-speed, large tyres, accessories; £28.—Shand, 14, Brandram Rd., Lee, London. [7012]

1916 Douglas, nearly new, all accessories; £55.—Apply, MacLean, 9, Longfield Rd., Ealing. [6778]

DOUGLAS, 2½ h.p., 1910, mag., ready ride away; £10.—152, Camberwell Grove, Camberwell. [6939]

LATE 1915 2½ h.p. Black Douglas, only run a few miles; £43.—Lewis, 61, London Rd., Twickenham. [6829]

COLMORE Depot, Birmingham, Leicester, and Liverpool, for Douglas motor cycles, also spare parts. [0800]

DOUGLAS, 1913, 2 speeds; £30.—Smith, 16, Haverstock Hill, opposite Chalk Farm Tube Station. [7052]

DOUGLAS, 2½ h.p., £15/10; 1913 2-speed, wants tuning up, £26.—Motor Exchange, Horton St., Halifax. [6664]

DOUGLAS, 1913, fast, perfect condition; £24/10; accessories.—Stewart, 110, Orchard Rd., Erdington. (D) [X4137]

DOUGLAS, 1912-13 T.T. model, wide tank, etc., 2 speeds; £28.—P. J. Evans, John Bright St., Birmingham. [X4163]

1915 Douglas, in fine order, 3 speeds, lamps, horn, numbers, etc.; £46.—Cross, Effingham Sq., Rotherham. [X4156]

DOUGLAS, 2½ h.p., single speed, good condition, 1913; must sell; £22/10.—17, Goldhawk Rd., Shepherd's Bush, London. [6863]

DOUGLAS.—Wholesale and retail West of England agents; write us your requirements.—Moffat Yeovil. Tel.: 50. [5855]

DOUGLAS, 1913, 2-speed, in excellent condition, and well cared for; £28.—E. Naldrett, Millfields, Rowhook, near Horsham. [6862]

RIDER TROWARD, 78, High St., Hampstead.—1913 T.T. Douglas, 2-speed, 27 gns.; 1913-14 ditto, perfect, 32 gns. [6963]

DOUGLAS, 1913½, 2-speed, will climb any freak hill in the country, very fast.—Meeson, 35, Park St., Islington, London. [6932]

1913 Douglas, T.T., 2½ h.p., 2-speed, tyres and belt as new, thoroughly overhauled throughout; 30 gns.—Railway Garage, Staines. [6821]

1915 2½ h.p. 2-speed Douglas and accessories, in good condition; £42/10; seen any time.—Bounds, Garage, 223, High Rd., Kilburn. [6898]

DOUGLAS, 1914, 2½ h.p., kick start model, plating and enamelling in really fine order; £44/10.—Lamb's, 151, High St. Walthamstow. [6881]

E. KICKHAM, Stokes Croft, Bristol.—1916 3-speed 2½ h.p. clutch model Douglas, fully equipped, only done about 400 miles; a bargain, £50. [X3924]

DOUGLAS Specialists.—Gibb, Gough, London Rd., Gloucester. Gibb, the International Douglas rider, winner of numerous cups and gold medals. [2218]

DOUGLAS, 1914, T.T., 2½ h.p., 2-speed, in splendid tune, long exhaust pipe, very fast; £38, or near offer.—R. Kirkby, Estate Office, Hornby, Lancaster. [X3829]

DOUGLAS, 1915, T.T. model, complete with lamps, mechanical horn, in splendid condition; accept £42.—Apply, 69, Hampton Rd., Teddington, Middlesex. [6911]

1914 2½ h.p. T.T. Douglas, horn, lamps, speedometer, 3 spare covers, 1 tube, valves, springs, etc., new spare belt; bargain, £35.—Savage, 115, The Vale, Acton, W. [6827]

1915 2½ h.p. Douglas, W, 3-speed, clutch, engine perfect, ridden very little, nearly new, with accessories; £52/10.—Robinson's Garage, Green St., Cambridge. [7055]

DOUGLAS, 4 h.p., T.T., October, 1915, 3 speeds, torpedo sidecar, spares, accessories, perfect condition; seen any time; £53.—Randall, 88, Church Rd., Barnes, S.W. [6926]

DOUGLAS, 1914, 2½ h.p., 2-speed, fully equipped, speedometer, accessories, and spares.—Pierrehusson, Primrose House Garage, Clarence Lane, Rotherham, S.W. [6934]

1914 2½ h.p. T.T. Douglas, 2-speed, new Dunlops, B170 saddle, 2 Lucas lamp sets, horn, Stewart speedometer, excellent condition; £38/10.—Robinson's Garage, Green St., Cambridge. [7057]

DOUGLAS, 4 h.p., and sidecar, 3 speeds, clutch, kick starter, new February, 1915, only used week-ends, tyres and condition excellent, spares; £70.—Newham, 51, Limes Av., New Southgate. [X3920]



NEW MODELS FROM STOCK.

ALLON, 2-stroke, 2-speed	£42 0
B.S.A., 4½ h.p. 3-speed, chain drive	£66 0
B.S.A., 4½ h.p., 3-speed, model K	£64 0
CALTHORPE, 2-stroke, 2-speed	33 gns.
CALTHORPE-J.A.P., 2½ h.p., 2-speed ..	38 gns.
ENFIELD, 2-stroke, 2-speed	42 gns.
ENFIELD, 3 h.p., twin, 2-speed	55 gns.
ENFIELD, 6 h.p. Combination	90 gns.
ENFIELD, 6 h.p. Combination, with Lucas dynamo lighting set	105 gns.
JAMES 2-stroke, 2-speed	£42 0
JAMES 3½ h.p. twin, 3-speed	£69 0
JAMES, 4½ h.p., Combination	£86 0
NEW IMPERIAL, 2½ h.p., 2-speed	39 gns.
NEW IMPERIAL, 2½ h.p., 2-speed, clutch, and kick starter	46 gns.
ZENITH-GRADUA, 3½ h.p., twin	£62 0

EXCHANGES.

We specialise in exchange transactions, and will allow full value for your old Motor Cycle or Light Car in Part Payment for any new one.

SECOND-HANDS.

The following is a selection from our large stock of machines of all types:

CLYNO, 1914, 6 h.p. Combination, Lucas electric light set, speedometer	£38
JAMES, 1915, 2½ h.p., 2-stroke, 2-speed, Lucas lamp set, rear lamp and horn	£33
ALLON, 1915, 2½ h.p., 2-stroke, 2-speed ..	£33
MATCHLESS, 1913, 8 h.p., 2-speed, clutch, and kick-starter, all accessories	£38
ZENITH, 1913, 3½ h.p., Gradua gear	£30
PREMIER, 1915, 3½ h.p., countershaft 3-sp. gear, lamps, and horn	£45
CALTHORPE, 1915, 2½ h.p., 2-str., 2-sp., headlight, rear lamp, horn, & speedometer ..	£28
VINDEC, 1911, 5 h.p., 2-sp., headlight, rear lamp, horn, and coachbuilt Sidecar	£22
CHATER-J.A.P., 1912, 8 h.p., countershaft, 3-sp. gear, all-chain drive, and coachbuilt Sidecar	£45
DOUGLAS, 1915, 2½ h.p., War Office model ..	£50
ALLDAYS MATCHLESS, 1915, 3½ h.p., coachbuilt Combination, 3-sp., lamps, and horn	£45
TRIUMPH, 1914, 4 h.p., 3-speed	£40
JAMES, 1916, 2½ h.p., 2-stroke, 2-sp., lamps, and horn	£36
B.S.A., 1916, 4½ h.p., 3-sp., all-chain drive, lamps, horn, and Canoelet Sidecar	£63
ROYAL ENFIELD, 1914, 3 h.p., twin, 2-speed ..	£32
DOUGLAS, 1910, 2½ h.p., lamps, and horn ..	£15
CALTHORPE MINOR, 1914, 2 h.p., 2-speed, and free engine	£15
CALTHORPE-J.A.P., 1915, 2½ h.p., 2-speed, lamps, and horn	£30

Deferred Payments accepted for either New or Second-hand Goods.

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MOTOR CYCLES FOR SALE.

Douglas.

1914 Douglas, 2½ h.p., 2-speed gear, P. and H. lamps, good tyres and belt, recently overhauled, easy starter, in splendid condition, very fast; what offers?—Heningham, Briarwood, Daventry [X4087]

DOUGLAS, 1912, 2½ h.p., kick start model, complete, and fully equal to the average 1914 machine, very good engine, machine overhauled; £26.—Layton's Garage, Bicester, Oxon. [7070]

DOUGLAS, 2½ h.p., 1913, 2-speed, T.T. bars, new frame (late pattern), engine overhauled by makers October, 1915, under 1,500 miles since, privately owned, carefully driven, no Pillion or sidecar work, tank re-enamelled, appearance very good, machine running well; reason for sale, bought W.D. model; £33, accessories.—Richards, 3, Arundel St., Strand. [6931]

Enfield.

3 h.p. Twin Enfield, in perfect condition; £27/10.—Chilton, High St., Watford. [6995]

COLMORE Depot, 31, Colmore Row, Birmingham, for immediate delivery of Enfields. [0801]

3 h.p. Enfield, little used; £32, offers; must sell.—18, Gowlett Rd., Peckham. Appointment. [6792]

1914 Enfield Combination, sprung handle-bars, new condition; £52.—Ross, 86, High Rd., Lee. [6781]

1916 Enfield, 3 h.p., all accessories, very fast; £39.—Ross, 86, High Rd., Lee. [6782]

ENFIELD, 1916, 6 h.p., dynamo lighting outfit, hood and screen; £85.—Box L2,872, c/o The Motor Cycle. [7111]

E. KICKHAM, Stokes Croft, Bristol.—1915 2-speed 3 h.p. Enfield, all accessories, condition as new; £40. [X3925]

ENFIELD 3 h.p. Twin, 2-speed, free, pedal start, good order, fast; £20.—14, Dodbrooke Rd., West Norwood. [0878]

ENFIELD, 6 h.p., and sidecar, grand outfit, had little use; bargain, £65.—156, Stockport Rd., Gee Cross, Hyde. [X4091]

ENFIELD Combination.—New models in stock; 6 h.p. 2-speed £94/10; cash, exchange, or deferred payment terms.—Below.

ENFIELD Combination, 1916, 6 h.p., 2-speed, dynamo lighting outfit, good condition; £80.—Elce and Co., 15-16, Bishopsgate Av., Camomile St., E.C. [0480]

1913 2½ h.p. Enfield Twin, 2-speed, clutch, Binks 3-jet, little used; £21, or close.—H., 9, Trafalgar Rd., Birkdale, Lanes. [X4083]

1917 6 h.p. Enfield Combination, almost as new, and accessories; seen any time; £85.—Bounds, Garage, 223, High Rd., Kilburn. [6895]

ENFIELD 1916 6 h.p. Combination, little used, guaranteed perfect condition throughout, complete with accessories; £69.—Moss, Wem. [X4193]

1916 Royal Enfield, 3 h.p., delivered November, mileage 250; cost £61, cash £53.—Marcus Draper, R.F.C., Exeter College, Oxford. [6913]

6 h.p. Royal Enfield 1913 Combination, in very fine order; £45.—Smith, 16, Haverstock Hill, opposite Chalk Farm Tube Station. [7051]

BIRMINGHAM Controlling Agent, P. J. Evans, John Bright St.—1917 Enfield models actually in stock for immediate delivery.—See below.

1917 6 h.p. Enfield Coachbuilt Combination, with apron and mat, 2 speeds, clutch and starter, 90 gns.; extra for hood and screen, £4/19; Lucas lighting set, 15 gns.; 8 h.p. J.A.P. engine, £2.—Below.

1917 3 h.p. Enfield, solo or sidecar mount, 2 speeds, clutch, and kick starter; 55 gns.; sidecars from 7 gns.—Below.

1917 Enfield 2-stroke, 2½ h.p., 2 speeds, with free engine, clutch, 42 gns.—P. J. Evans, John Bright St., Birmingham. [X4169]

1916 Enfield Combination, lamps, mechanical horn, wind screen, spare valves and chains; £72.—4, Thornton St., Kempston, Bedford. [7043]

3 h.p. Enfield, 1914-15, 2-speed, kick start, lamps, horn, speedometer, back rest, good condition; £34.—27, Malmesbury Park Rd., Bournemouth. [7047]

1916 Enfield Combination, Lucas dynamo lighting, speedometer, practically new; bargain, 80 gns.—M., 5, Rugby Mansions, W. Kensington. [7011]

ENFIELD, 3 h.p., late 1915, kick starter, new tyres, in new condition, all accessories; £39, or near.—W. Ayers, Garage, Kensington Palace, W. [6868]

ENFIELD 1916 Combination, not done 1,000, triple screen, Stewart meter, all spares; £80; expert examination.—Moyle, Photographer, Muswell Hill, N. [X4212]

1915 6 h.p. Enfield Combination, in perfect condition, P. and H.; £62/10; lamps, Lucas horn, and accessories; seen any time.—Bounds, Garage, 223, High Rd., Kilburn. [6896]

ENFIELD Combination, 90 gns.; 3 h.p. twin, £57/10; 2-speed, 2-stroke, £45; delivery from stock.—Exeter Motor Cycle Co., Ltd., Bath Rd., Exeter, and Tavistock Rd., Plymouth. [0838]

RIDER TROWARD, 78, High St., Hampstead.—1913 Enfield coachbuilt combination, good condition, 39 gns.; 1914 Enfield coachbuilt combination, perfect, all tyres new, 49 gns. [6961]

1916 6 h.p. Enfield Combination, complete with lamps, speedometer, horn, and accessories, not done 800 miles, perfect; 75 gns.—Wellbooy Garage, Woodford Rd., Forest Gate. Tel.: Stratford 309. [6869]

MOTOR CYCLES FOR SALE.

Enfield.

1916 3h.p. 2-speed Clutch Twin Enfield, acetylene head and tail lamps, mechanical horn, full kit tools, new Palmer cords, new October, run 200 miles; cost £61, cash £52.—Hunstone, Exeter Cottage, Oxford. [6866]

1916 3h.p. Enfield, 2-speed, kick start, Millers head and Lucas rear lamps, mechanical horn, Thompson-Bennett mag., ridden 500 miles only; bargain, £42/10.—Robinson's Garage, Green St., Cambridge. [7058]

ENFIELD 6h.p. Combination, late 1916, speedometer, lamps, tools, indistinguishable from new, new, silent and powerful, and guaranteed perfect throughout: £75, accept Douglas or Triumph part.—280, Camberwell Rd., S.E. [7045]

ENFIELD, late 1916 3h.p. twin Royal Enfield, 2-speed, chain drive, 26x2 1/4 Palmer cord tyres, lamp, horn, and tail lamp, not done 500 miles, and guaranteed as new; £42.—The Premier Motor Co., Aston Rd., Birmingham. [6843]

ENFIELD, 1916, 3h.p., 2-speed, kick start, complete; cost £60, accept £46; this machine has been used 50 miles only, and is offered because owner, wounded leg, finds it impossible to use a motor cycle.—Layton's Garage, Bicester, Oxon. [7071]

ENFIELD 6h.p. 1917 2-seater Combination, £97/10/3; 3h.p. solo models, T.T. touring, £57/15; actually in stock; good prices offered for up-to-date machines in part exchange; deferred terms if desired. Also 1916 6h.p., horn, 3 lamps, condition unscratched, £85; 3h.p. 1916, ridden 2,000 to 3,000 miles, £45/10; and two 1915's, 3h.p., all accessories, ridden under 1,500 miles, £43/10; and 1916 commercial combination, new two months ago, ridden 400 miles, £87/10, all accessories.—Lamb's, 151, High St., Walthamstow, and 50, High Rd., Wood Green. Tels.: Walthamstow 169, and Hornsey 1956. [6878]

Excelsior.

RIDER TROWARD, 78, High St., Hampstead.—Excelsior, 3h.p., Bosch, new carburetter, dropped top tube, pan saddle; 8 gns. [6975]

EXCELSIOR, 1916, 7h.p., 3-speed, and coach sidecar, used for demonstration; £69/10, cash bargain.—Motor Exchange, Horton St., Halifax. [6666]

BRITISH Excelsior, 4 1/2 h.p., late 1913, coachbuilt sidecar, Sturmev-Archer 3-speed hub, free engine, speedometer, 3 lamps and generator, 2 horns, and watch, tyres nearly new, tools, in sound condition, little used; 35 gns.—Smith, 54, Wellington St., Luton. [X4142]

EXCELSIOR, special New Year Bargain.—Brand new American Excelsior, 7h.p., 3-speed, with all latest improvements, new type kick starter, gear box, mechanical oil pump, etc., as listed at £75, our price £65 cash, or with special Montgomery coachbuilt sidecar, enamelled to match, £80.—To be obtained only from the Premier Motor Co., Aston Rd., Birmingham. [6844]

Fafnir.

FAFNIR Combination, 2-speed, mag.: £20; good condition.—John Ash, 140, Powis St., Woolwich. [6867]

3 1/2 h.p. Fafnir Combination (no body), mag., B. and B., N.S.U. 2-speed, ready to ride; £12/10.—Garage, The Green, Southgate, N. [X4213]

F.N.

2 3/4 h.p. F.N. Bosch mag., clutch, splendid condition, £10; also 1912 F.N., 4-cyl., clutch, £15.—Smith, 16, Haverstock Hill, opposite Chalk Farm Tube Station [7054]

1911 F.N., new gears, tank, bars, Amac, dropped frame, economical, fast, reliable, splendid condition; £18.—Voss, 103, Churchfield Rd., Acton. (D) [6935]

Grandex.

1914 Grandex-Precision, 2 1/2 h.p., 3-speed Sturmev gear; £13/15, bargain.—54, Seymour Rd., Leyton, E. [6899]

Harley-Davidson.

1915 Harley-Davidson Combination, all brown model, all accessories; £62.—Ross, 86, High Rd., Lee. [6784]

J. A. STACEY, 12, Ecclesall Rd., Sheffield, for immediate delivery of Harley-Davidsons. Spares, 24 hours' service. [6244]

1915 Harley-Davidson, 3-speed, fully equipped, with special Swan sidecar lamps, etc.; £65.—Ray, 10, Elms Buildings, Eastbourne. [6806]

HARLEY-DAVIDSON, 1915, 7-9h.p., with Ivy sidecar, all accessories, first-class order; £60.—Mannington, Gravel Walk, Canterbury. [X4171]

LATE 1915 Harley-Davidson, 7-9h.p., Millford sidecar, splendid condition; owner called up; bargain, £60.—J. Bardwell, Belle Vue, Mansfield. [X4056]

COLMORE Depot, Birmingham, Manchester, Liverpool, Leicester, for immediate delivery of all models of Harley-Davidsons, and spare parts. [0802]

TWIN-CYL. 8h.p. Harley-Davidson Motor Cycle, 1915 model, as new, only run 800 miles; would accept £70, or offer, for a quick sale.—Robb, Chiltley Place, Liphook. [6814]

HARLEY-DAVIDSON, 1915, dynamo lighting model, gone 3,000, good condition; £55, or near offer; any inspection invited.—Hawkes, 11, West Heath Av., Golders Green. [6825]

HARLEY-DAVIDSON 1915 Combination, new sidecar, fully equipped, spares, tools, tyres unpunctured, perfect condition; first comer £58; no letters.—6, Lorenzo St., Pentonville Rd., King's Cross. [6840]



"A Happy New Year to our Friends at Home and at the Front."

We feel it opportune to send a few extracts from letters received from our clients at Home, from the Front, the Navy, and the Colonies during the past year.

We trust it will help to promote confidence to "GET IT AT TAYLORS."

Tidworth,
30th September, 1916.

Sirs,—I have to thank you for the prompt reply and supply of goods. You are the first motor accessory supply firm that I have as yet found who take the trouble to reply per return.

Here, away from all sources of supply, it is highly desirable to be able to get certain types of accessories per return.

I want three more of your catalogues—two for colleagues and one for this mess. Six or eight of us have machines.

Hendon,
22nd December, 1916.

Dear Mr. Taylor,—Many thanks for your letter enclosing account and for getting the chassis off so promptly. It is a pleasure to deal with a firm where promises are kept in these times.—H.B.

B.E.F.,
15th June, 1916.

The wheel arrived safely and promptly, for which I thank you. Your firm is the only one which seems to consider the interests of their customers, and your promptness in carrying out orders make it a pleasure to deal with you.

Yours faithfully,
Major

Sturminster Newton,
27th July, 1916.

The speedometer is now working satisfactorily. In conclusion, may I express my keen appreciation of the very impartial manner you have dealt with this matter.

May you enjoy all the success you deserve, as firms such as yours are not to be met every day of the week; in fact, one in a lifetime is all one gets, and then they consider themselves lucky.

Again thanking you, and no doubt we shall do business in the future.

Yours faithfully,
C.S.T.

S. Africa,
5th June, 1915.

Dear Sirs,—The goods arrived in good order and condition, for which many thanks.

I am particularly pleased with the mechanical horn. It is strong, and has a fine note of warning—not jarring to the nerves, as is usual with other makes.

Yours faithfully,
C.H.H.

S. Africa,
11th September, 1916.

I am well pleased with the mechanical horn and Marvel vulcaniser received a few months ago.

Yours faithfully,
C.H.H.

Grand Fleet,
19th January, 1916.

Dear Sirs,—Goods received from you very satisfactory and on top line. Lamp arrived safe, with postal order covering balance.

I remain,
Yours truly,
G.S.B.L.

H. TAYLOR & CO., LTD.

Showrooms: 21a, STORE STREET, W.C.

Wholesale: 38, ALFRED PLACE, W.C.

Garage: 12, Tottenham Mews, W.C.

'Phone—Museum, 1240.
Telegrams—"Dynametro, Westcent, London."

MOTOR CYCLES FOR SALE.

Harley-Davidson.

LATE 1915 Harley-Davidson Combination, fully equipped, excellent condition, £80; cash or easy terms.—R. E. Jones (Garages), Ltd., Swansea. [0861]

HARLEY-DAVIDSON 1916 Models delivered from stock on the best terms for cash, exchange, or deferred payments. Sidecars in stock to fit.—Elce and Co., 15-16, Bishopgate Av., Camomile St., E.C. [0552]

HARLEY-DAVIDSON, late 1915, full electric equipment, disc wheels, special semi T.T. bars, Swan touring sidecar, just overhauled, not done 2,600; any trial; £90, offers considered.—Write or call, W. Manley, 62, Albert Hall Mansions, London, S.W. [6808]

RIDER TROWARD, 78, High St., Hampstead.—1916 Harley-Davidson coachbuilt combination, cost over £100, mileage 500, 79 gns.; ditto, with dynamo lighting, mileage 100, unscratched, indistinguishable from new, cost £120, 95 gns. [6962]

HARLEY-DAVIDSON 1916 Model 16F and Canoelet car, wind screen, big F.R.S. lamp, Stewart horn, ridden 600 to 700 miles approximately, really good thing, £89/10; and 1916 model 16F, electrically equipped, with genuine H.D. sidecar, Cowey speedometer, ridden 900 miles only, £92/10; very good thing; deferred payments, exchanges.—Lamb's, 151, High St., Walthamstow, and 50, High Rd., Wood Green. Tels.: Walthamstow 169, and Hornsey 1956. [6879]

HARLEY-DAVIDSON, special New Year bargains for cash buyers.—Brand new model 11F, 7-9h.p., 3-speed, makers' present list price £95, our price £75 cash; also model 11J, 7-9h.p., 3-speed, with dynamo electric lighting outfit, makers' present list price £102, our price £80 cash. These machines are brand new, not shop-soiled, and not yet unpacked from makers' cases. The number is limited, and early application is necessary to secure delivery at these prices. Gloria sidecar, enamelled to match, £20; Gloria Model de Luxe, with spring wheel, £25; Montgomery American model, £16.—The Premier Motor Co., Aston Rd., Birmingham. [6845]

Hazlewood.

HAZLEWOOD, 2 3/4 h.p. J.A.P., 3-speed, free engine and clutch, 1916 carburetter, recently overhauled, new piston and bushes fitted, trip mileometer, mechanical horn, tools, etc.; any trial; £19, or nearest offer; called up.—Unstead, 11, St. Andrew St., Bethnal Green. [X3916]

Henderson.

RIDER TROWARD, 78, High St., Hampstead.—1915 Henderson, Bramble 20 gn. underslung coachbuilt sidecar, dynamo lighting, mileage 2,000, indistinguishable from new, cost £112; 85 gns. [6964]

Hobart.

1914 2 3/4 h.p. Hobart, Sturmev-Archer 3-speed, excellent condition; £20.—Clayson, 27, Bridge St., Northampton. [X4136]

Humber.

HUMBER, 2 3/4 h.p., and sidecar; £7/10; must sell.—Mallory, Sherburn, York. [6833]

1914 3 1/2 h.p. 3-speed Humber, lamp, etc.; £35; cash or easy terms.—R. E. Jones (Garages), Ltd., Swansea. [0863]

1912 2-speed Humber, £18/10; new Middleton wicker sidecar, £4/10.—Mosedale, 30, Canterbury Rd., Kilburn. [6770]

1913-14 3 1/2 h.p. Humber, Roc improved 2-speed gear, decompressor, and sidecar; £28.—80, Bispham Rd., Southport. [X4101]

HUMBER, 1914, 6h.p., water-cooled, 3-speed, Mills-Fulford sidecar, lamps, and horn complete, splendid condition; £85.—Fryers, Hereford. [X4053]

HUMBER, 3 1/2 h.p., well kept, perfect order, reliable; £19, reasonable offer not refused; after 8 o'clock.—17, Michigan Av., Manor Park. [X4093]

HUMBER Combination, 3 1/2 h.p., 2-speed, free, mag., B. and B., fast, in fine order and condition; £18.—Head, 31, Hamthorpe Rd., West Norwood. [0870]

HUMBER, 1915, 3 1/2 h.p., 3-speed, nearly new; special price, £57/10.—Exeter Motor Cycle Co., Ltd., Bath Rd., Exeter, and Tavistock Rd., Plymouth. [0842]

HUMBER, 3 1/2 h.p., 1911, 2-speed, handle start, Cowey speedometer, coach sidecar, wind screen, spares, excellent condition; trial; £25/10; seen Sunday, or by appointment. 'Phone: Hop. 624.—149, Links Rd., Tooting Junction. [X4056]

1917 3 1/2 h.p. Humber, twin horizontal engine, semi-T.T. bars, handle-bar controlled clutch, quite new, just delivered, £75; with Mills-Fulford coach sidecar complete, £88; Douglas machines taken in part exchange.—Robinson's Garage, Green St., Cambridge. [7056]

Indian.

1915 Indian, 5h.p., 3-speed, K.S., like new; £46.—Ross, 86, High Rd., Lee. [6785]

7 h.p. Indian Combination; £38; exchange lightweight.—Brown, 96, Phoenix St., West Bromwich. [X4081]

INDIAN, 7-9h.p., 1914, 2 speeds, spring forks, electric horn, tyres excellent; £30.—Cleverlys, Oxted [6810]

MODEL G 1916 Indian and Phoenix Sidecar, very little used; £75.—Chilton, High St., Watford. [6994]

1914 7-9h.p. T.T. Indian Combination, clutch, disc wheels; £30.—Clough, New Hall Hey, Rawtenstall. [6772]

LATE 1915 5-6h.p. Indian, fitted with Canoelet sidecar, grand condition; £55.—Lewis, 61, London Rd., Twickenham. [6828]

MOTOR CYCLES FOR SALE.

Indian.

1914½ 7-9h.p. Indian Combination, electrically equipped and guaranteed perfect; £45.—20, Whitley St., Reading. [7109]

INDIAN, 1915, 3½h.p., 3 speeds, clutch, kick starter, and sporting sidecar; £48, or near offer.—Locke, c/o Clayton's Garage, Wallington, Surrey. [7024]

1916 T.T. Indian Powerplus, 3-speed, and accessories, in good condition; seen any time; £57/10.—Bounds, Garage, 223, High Rd., Kilburn. [6897]

INDIANS.—1915 7h.p. 3-speed De Luxe combination, £58; 5h.p., 3 speeds, coach torpedo sidecar, 50 gns.—P. J. Evans, John Bright St., Birmingham. [X4165]

INDIAN 1915 6h.p. Combination, 3-speed, kick start, clutch, as new; going away; must sell; £58, no offers.—Lieutenant, Foxwarren Park, Cobham, Surrey. [6773]

INDIAN, 7-9h.p. (1914), good as new, little used; owner at front; will be sold by auction January 16th, 1917.—Charles Muskett, 88, Station Rd., New Southgate, N. [6621]

INDIAN, 7-9h.p., clutch, kick starter, all accessories, in new condition; £38; or with coachbuilt sidecar and P. and H. lighting set, £45, no offer.—King, 73, Hill St., Peckham. [7097]

1916 (Aug.) 5h.p. Indian and 16 gn. sidecar, 3 speeds, kick start, run 1,000 miles, and in brand new condition, runs beautifully; £68, no offers.—Box 618, c/o The Motor Cycle. [X4200]

INDIAN, late 1914, 7-9h.p., spring frame, 35 gn. Gloria Projectile sidecar, electric lighting, speedometer, spares, perfect condition, smart turnout; photo; £65, bargain.—60, Wright St., Horwich, Lancs. [6818]

1916 7-9h.p. Indian Powerplus de Luxe Combination, mag., dynamo electric lighting set and horn, new condition, used few trial runs only; cost £111, sacrifice £95, or exchange Ford car.—67, Far Gosford St., Coventry. [X4095]

INDIAN, late 1916 Powerplus, 3 speeds, clutch, kick starter, accessories, sporting coachbuilt sidecar, all disc wheels, fast, excellent condition; any trial; very sporting turnout; £65; letters only.—Invalided, Hardwicke, Lindfield, Sussex. [6858]

INDIAN, 1916 models in stock. I have a few model C's left, £78; specification includes 7-9h.p., 3 speeds, countershaft, clutch, and kick starter, spring frame, and electric lamps and horn, £78.—P. J. Evans, John Bright St., Birmingham. [X4167]

INDIAN 1916 5h.p. Twin, T.T. model, 3-speed, kick starter, 28x3in. heavy Dunlop tyres, Stewart speedometer, and mechanical horn, all tools, very fast machine, in excellent condition; £55.—The Premier Motor Co., Aston Rd., Birmingham. [6846]

1916 (Aug.) 7-9h.p. Powerplus Indian, Millford sidecar, dynamo lighting, 3 lamps, electric horn, spring frame, 3 speeds, speedometer, Dunlops unpunctured, only done 1,800, as new; best offer over £80; owner going overseas; seen any time.—Box L2,888, c/o The Motor Cycle. [6813]

Ivy.

RIDER TROWARD, 78, High St., Hampstead—1915 Ivy, 2-speed, 2-stroke, perfect; 24 gns. [6969]

IVY, 1915, 2-stroke, 2-speed, perfect condition, lamps, horn, etc.; £30.—H. Brown, 31, Lithos Rd., Finchley Rd., Hampstead. [6856]

James.

JAMES 1915 3½h.p. Twin, 3-speed countershaft, lamp, and horn, little used; £52.—Fryers, Hereford. [X4052]

COLMORE Depot, 261, Deansgate, Manchester, have in stock complete range of James motor cycles. [0803]

1916 4½h.p. James Combination, used for demonstration runs; £70.—Parker and Son, St. Ives, Hunts. [7041]

JAMES 4½h.p. Combination, new coachbuilt sidecar, 3-speed countershaft, speedometer; £37/10.—Boyce, 27, Turnpike Lane, Hornsey. [6905]

1911 James, 3½h.p., free engine, new belt and tyres, splendid order, spring frame; £15.—Wallis, 7, Lower Hillmorton Rd., Rugby. [X4010]

JAMES Lightweight, 1915, 2½h.p., 2-stroke, had very little use, and equal to new; £28 cash.—The Premier Motor Co., Aston Rd., Birmingham. [6847]

JAMES 1914 4½h.p. Coach Combination, countershaft gear, and accessories, £44/10; also 1915 model, £56/10.—Motor Exchange, Horton St., Halifax. [6667]

JAMES, 1917 model, for immediate delivery from stock. Big four combinations, with and without Lucas dynamo lighting set; 3½h.p. twin, and 2-stroke models.—P. J. Evans, John Bright St., Birmingham. [X4168]

J.E.S.

J.E.S. Lightweight, Amac carburetter, Lycett saddle, good condition, recently overhauled; £12.—Laven-der, Gedney Hill, Wisbech. [7026]

J.H.

1915 J.H., M.A.G. 2-cyl. engine, 3-speed, mileage about 600, good condition; cost £65.—Speer, Powyscourt, Balcombe, Sussex. [6838]

1916 J.H., 6h.p. M.A.G. engine, 3-speed Sturmey-Archer countershaft gear box, h.b.c. clutch, Binks carburetter, all in grand condition, and as new, very fast; £50.—Jones, Garage, Broadway, Muswell Hill. [7094]

NONE CAN BEAT



GRAND BARGAINS.

Few can equal our great selection for Number, Value, Variety, and Low Price in the most sought after New Models and perfect Second-hands that save buyers many pounds and give unsurpassable satisfaction for unique value and completely satisfactory riding condition.

TELL US YOUR WANT. WE CAN FILL IT.

BIG SHOW OF NEWEST MODELS.

- Fully detailed Lists sent free, including:
- ALLDAYS ALLON, 2-stroke, 2-speed ... £44 17 9
 - ALLDAYS ALLON, 2-stroke, 2-sp., clutch £48 0 9
 - 6 h.p. ENFIELD Combination, 2-seat. Sc. £102 0
 - 7 h.p. INDIAN, Model G, 3-speed £75 0
 - 4-5h.p. ZENITH, Model D £73 18
 - 2½ h.p. LEVIS, 2-stroke, Popular model .. £32 0
 - 2½ h.p. NEW IMPERIAL, 2-speed, k/start £48 8
 - 2½ h.p. NEW IMPERIAL, 2-speed, Model I £40 19
 - 2½ h.p. CALTHORPE, 2-stroke, 2-speed .. £34 13
 - 2½ h.p. CALTHORPE-J.A.P., 2-speed £39 18
 - 2½ h.p. LEVIS, 2-sp., Model E, chain drive £47 10
 - 2½ h.p. SPARKBROOK, 2-stroke, 2-speed. £40 0
 - 5 h.p. CLYNO, Military Model, with Sidecar, spare wheel, and luggage grid ... £108 3
 - 6 h.p. ENFIELD Combination, elec. equip. £110 5
 - 2½ h.p. ENFIELD, 2-stroke, 2-speed £44 2
 - 7 h.p. INDIAN, Model C, 3-speed £78 0
 - 3 h.p. ENFIELD, Model 140 £57 15
 - 5 h.p. INDIAN, Model B, 3-speed £70 0
 - 4½ h.p. B.S.A., Model H £66 0
 - 4½ h.p. B.S.A., Model K £64 0
 - 2½ h.p. DIAMOND-J.A.P., Enfield 2-sp gear £40 19
 - 2½ h.p. O.K. JUNIOR-J.A.P., 2-speed £38 0
 - 2½ h.p. EXCELSIOR, 2-stroke, 2-speed ... £39 5
 - 2½ h.p. EXCELSIOR, 2-stroke, single gear. £30 16
 - 2½ h.p. EXCELSIOR, lady's model £46 10
 - 2½ h.p. SPARKBROOK, 2-stroke, 2-speed. £40 0

AT OUR GLASGOW HOUSE.

- All above New Models and a big show of Second-hands, including many almost new. Full Lists free, including:
- 1916 4 h.p. CALTHORPE Com., 2-sp., F.E. £60 0
 - 1915 6 h.p. CLYNO Com., complete equip. £65 0
 - 1915 6 h.p. ENFIELD Com., dyn. lighting £75 0
 - 4 h.p. PREMIER, twin, 2-sp., and Sidecar £26 0
 - 1916 7 h.p. INDIAN & Sc., Mod. C, as new £68 0
 - 1914 6 h.p. MATCHLESS-J.A.P. and S'car £44 0
 - 1916 AUTO-WHEEL, with Raleigh 2-speed £15 0
 - 8 h.p. HUMBERETTE, complete, perfect, full equipment. Special £68 0

AT OUR EDINBURGH HOUSE.

- All above New Models and Scotland's biggest show of thoroughly reliable Second-hands, all perfect, and many as new. Full Lists free, including:
- 1915 2½ h.p. ROYAL RUBY, 2-str., Villiers engine £21 0
 - 1915 2½ h.p. CALTHORPE, 2-stroke £21 0
 - 1913 3½ h.p. B.S.A., belt drive, 2-sp., F.E. £25 0
 - 1913 3½ h.p. ROVER, 3-speed, Lucas head lamp, generator, horn, speedometer.. £27 0
 - 1913 3½ h.p. RUDGE Multi, lamp and horn £35 0
 - 1914 7 h.p. INDIAN, spring frame, 2-sp., with Gloria coach Sidecar, full equip. £42 0
 - 1917 5-6h.p. CLYNO Com., 3-sp., kick, war khaki finish, interchangeable wheels, spare and tyre, head and rear lamps, 2 generators, horn, carrier, only used few miles; cost £114; as new £95 0
 - 1914 2½ h.p. DOUGLAS, T.T., speedometer and accessories £35 0
 - 1916 2½ h.p. EXCELSIOR, 2-stroke, 2-sp.. £39 0
 - 6 h.p. BRADBURY, 3-speed, and Sidecar. £43 10
 - 1916 2½ h.p. INDIAN, used only 50 miles. £44 0
 - 1915 2½ h.p. DOUGLAS, Model U, 2-speed £46 0
 - 1914 4½ h.p. B.S.A., with torpedo Sidecar. £48 10
 - 1916 4½ h.p. B.S.A., 3-speed, coach Sidecar £63 0
 - 1915 7 h.p. INDIAN, spring frame, and Indian Sidecar £56 10



113-115, LOTHIAN ROAD, EDINBURGH.
272-274, GT. WESTERN RD., GLASGOW.

MOTOR CYCLES FOR SALE.

Kerry.

KERRY, 2½h.p., going order; £4/10.—53, Clive Rd., West Dulwich. [X4099]

2½h.p. Kerry, less battery, engine like new, vertical; £5.—80, Bispham Rd., Southport. [X4100]

KERRY, 2½h.p.; owner called up; £9, offer; must sell.—Clement, 2, Windsor Rd., Camberwell. [7048]

KERRY-ABINGDON, 5h.p., 3-speed, etc., perfect, and fully equipped, and fitted with a new Mills-Fulford coachbuilt sidecar; £35.—Smith, 199b, King St., Hammersmith. [6998]

Levis.

LEVIS, latest, brand new, single and 2-speed models in stock.—Moss, Wem. [X4191]

LEVIS, just overhauled; £16/10.—Kink, 52, Brod-rick Rd., Wandsworth Common. [6901]

LEVIS, 1915, new condition, very fast; £22, or near offer.—45, Hurst Grove, Bedford. [X4037]

LEVIS Baby, 2½h.p., perfect; £20.—W. and H. Motor Co., Ltd., 287, Deansgate, Manchester. [6593]

1916 Levis, month old, perfect throughout; 25 gns.—245, Hammersmith Rd., London, W. [6909]

1916 Levis, perfect condition, hardly used, lamps, horn, etc.—Ray, 10, Elms Buildings, Eastbourne. [6805]

RIDER TROWARD, 78, High St., Hampstead.—Levis Popular, 1915, mileage 2,000, perfect; 19 gns. [6973]

COLMORE Depots, Birmingham and Leicester, for delivery of all models of Levis motor cycles from stock. [0804]

1916 2½h.p. Levis, as new, under 200 miles, complete; £40.—Tucker, Clunes, Four Oaks, Birmingham. [X4124]

LEVIS, 2-stroke, excellent running order, Bosch mag., T.T. bars; £12/10, lowest.—Newnham, 223, Hammersmith Rd., W. Phone: 80. [6983]

Lincoln-Elk.

RIDER TROWARD, 78, High St., Hampstead.—1915 Lincoln Elk, 4½h.p., 2-speed countershaft gear, hand clutch, kick-start, powerful sidecar or solo machine, mileage 5,000; 29 gns. [6966]

1914 Lincoln-Elk, 3h.p., clutch, excellent condition, complete with lamps, horn, etc., Bosch mag., nearly new Palmer tyres; special bargain to clear, £16/10; exchanges.—Newnham, 223, Hammersmith Rd., W. Phone: 80. [6981]

L.M.C.

RIDER TROWARD, 78, High St., Hampstead.—1912 L.M.C., 3½h.p., very good order; 12 gns., bargain. [6976]

Lugton.

RIDER TROWARD, 78, High St., Hampstead.—Lugton-Precision, 1914, 4h.p., T.T. clutch model, good order; 21 gns. [6972]

Matchless.

MATCHLESS, 4h.p., 2-speed, T.T. bars; £30; combination wanted.—S.G., Oakhurst, Eastrop, Basingstoke. [6779]

6 h.p. Matchless and Millford sidecar, complete lamps, horn, numbers, etc.; £44.—Cross, Effingham Sq., Rotherham. [X4157]

MATCHLESS 6h.p. 2-speed Coach Combination; £42/10, or exchange.—Motor Exchange, Horton St., Halifax. [6668]

MATCHLESS-J.A.P. Combination, 8h.p., 1915, 3 speeds, speedometer, Lucas lamps, Low generator, new tyres, excellent condition; £75.—Box 614, c/o The Motor Cycle. [X4086]

Minerva.

MINERVA 5h.p. Twin, very powerful and fast; £15, or cycle in part; appointment.—4, Roupell Buildings, Brixton Hill, S.W. [6794]

Motosacoche.

1914 Motosacoche, 2½h.p., single speed, Bosch, new Avons; £12.—Wright, 185, Silverdale Rd., Tun-bridge Wells. [6865]

New Hudson.

1916 2½h.p. 2-stroke 2-speed New Hudson Light-weight, slightly shop-soiled; £33 cash.—Manby, Kirkgate, Wakefield. [X4114]

NEW Hudson, 2½h.p., 2-speed, 2-stroke; £38.—Exeter Motor Cycle Co., Ltd., Bath Rd., Exeter, and Tavistock Rd., Plymouth. [0840]

1913 3-speed New Hudson and sidecar, all in perfect order and condition, all lamps, etc.; £30.—Jones, Garage, Broadway, Muswell Hill. [7087]

NEW Hudson 1912-13 3½h.p. Combination, 3 speeds, clutch and starter, good condition, £28; 1912 combination, £22.—P. J. Evans, John Bright St., Birmingham. [X4164]

NEW Hudson Big Six Combination, O.B., counter-shaft, clutch, 3-speed, speedometer, lamps, etc., perfect condition; trial arranged.—13, St. Swithins, Winchester. [X4206]

1915 4h.p. New Hudson and Sidecar, 3-speed counter-shaft gear box, all in splendid order and condition, all lamps, etc.; £52; deferred payments arranged.—Jones, Garage, Broadway, Muswell Hill. [7088]

NEW Hudson, 1912-13, 3½h.p., 3-speed, clutch, kick start, gears just overhauled at cost £6 by specialist, B. and B., Bosch, new belt and spare, dropped foot-rests, semi T.T., long exhaust; £26/10.—Brown, 4, Grove Gardens, Isleworth. [7016]

MOTOR CYCLES FOR SALE.

New Imperial.

19 14-15 Imperial-Jap, 2½h.p., 2-speed; £24.—Ross, 86, High Rd., Lee. [6787]
NEW Imperial, latest 2½h.p. and 6h.p. models in stock.—Crow Bros., Guildford. [6367]
19 17 New Imperial Lightweight, 2 speeds; 39 gns.—Motor Exchange, Horton St., Halifax. [6670]
COLMORE Depots, Manchester and Leicester, for immediate delivery of New Imperial motor cycles. [0805]
19 15 New Imperial-Jap, in fine order, complete, lamps, etc.; £25.—Cross, Jeweller, Rotherham. [X4155]
NEW Imperial, almost new, not ridden 200 miles, fully equipped; what offers?—S. Alderton, 426, Strand, W.C. [6893]
J. A. STACEY, 12, Ecclesall Rd., Sheffield, for Imperial-Jap, the finest lightweight on the market; delivery from stock. [6246]
BIRMINGHAM Agent, P. J. Evans, John Bright St.—1917 New Imperial models in stock for immediate delivery; 2½h.p. 2-speed models, 38 gns.; also clutch models for light sidecar work. [X4194]
19 16 New Imperial, new September, 2 speeds, 2 lamps (P. and H.), 2 generators, horn, spares, spare tank, vaporiser, perfect condition, ridden 600 miles; £32.—79, Clarence Rd., St. Albans. [X4059]

Norton.

19 14 T.T. Norton, Brooklands special, 1916 Philipson, all accessories; £38.—Lieut. Stansbie, 14, Montpellier Row, Blackheath. [6809]
19 15 Norton, T.T., Philipson pulley, not been used in 1916, absolutely like new, very fast; what offers?—Hick, Sherburn, York. [6834]
NORTON, 1914, Big Four, complete with Bowser 2-seat C.B. sidecar, lamp, horn, etc., almost new condition throughout, owner on service; offers wanted.—Layton's Garage, Bicester, Oxon. [7072]
NORTON, 1916½, 3½h.p., T.T., 3-speed countershaft, with Norton sporting sidecar, lamps, horn, etc.; 70 gns.; consider 2½h.p. Douglas part exchange.—C/o Smith, Clifford House, Holmer St., Hereford. [X4119]
NORTON Big 4 Combination, in very fine order, luggage grid, petrol tin carrier, sidecar brake (Mr. Norton's demonstration machine, as illustrated in catalogue), belt drive, 3-speed Sturmey hub, 3in. tyres; £55.—Wallis, Motors, Hereford. [6871]

N.S.U.

N.S.U., 3h.p., 2-speed, £14/10; 3½h.p., 2 speeds, £17/10; bargain prices.—Motor Exchange, Horton St., Halifax. [6669]
19 13 3h.p. N.S.U., wants slight overhaul, only wants seeing, 2-speed, etc., guaranteed nothing broken or worn out; a bargain, £13/10.—Jones, Garage, Broadway, Muswell Hill. [7089]
RARE Bargain.—1913 3h.p. twin N.S.U., 2 speeds, new tyres and belt, splendid condition, very fast and powerful, guaranteed perfect, all accessories; only £14.—Brown, Gloucester Rd., Chesterfield. [X4135]
O.K. in stock, M.A.G. £42/10, J.A.P. £38.—Youngs, 2 and 3, The Parade, High Rd., Kilburn [5931]
O.K. Junior, late 1915, J.A.P. 2½h.p., 2-speed, lamps, accessories, very little used; £28.—Davis, Acaia, Coleman Rd., Belvedere. [X4084]
O.K., 1916, 4-stroke, 2-speed, countershaft, elaborate accessories, spares, and tools, as new; £25.—Head, 31, Hainthorpe Rd., West Norwood [0867]
19 14 O.K., 4-stroke, 2-speeds, engine and gears in splendid condition, tyres unpunctured, 100 m.p.g.; £16, lowest.—Richardson, 298, Fulham Rd., S.W. [6918]
O.K. Junior, Mark VI., 2-speed countershaft, splendid condition, delivered from works June 3rd, 1916, very little used for 3 months; £30/10, no offers.—Hooper, Castle Works, Mere, Wilts. [6799]

P. and M.

P. and M., 1913, 3½h.p. coachbuilt combination; £40.—Tuke and Bell, Ltd., Motor Dept., Cariton Engineering Works, High Rd., Tottenham, N. [4916]
19 12 3½h.p. P. and M., 2-speed, kick starter model, and coachbuilt sidecar, new tyres, splendid running order; £28 cash.—Manby, Kirkgate, Wakefield. [X4115]

Peugeot.

5 -6h.p. Twin Peugeot, Bosch, B. and B., free engine, Pillion, sidecar, overhauled; £25; owner joined up.—Purser, 331, Wick Rd., Hackney Wick. [6912]

Premier.

PREMIER, 3½h.p., fully equipped, just overhauled; bargain, £22.—52, Elm Grove, Southsea. [6826]
PREMIER, 1912, 3½h.p., 2 speeds; £21/10, or with sidecar £25/10.—Motor Exchange, Horton St., Halifax. [6671]
19 14 3½h.p. Premier, 2 speeds, coachbuilt sidecar; £45; cash or easy terms.—R. E. Jones (Garages), Ltd., Swansea. [0823]
19 14 Premier, 3½h.p., 3-speed countershaft gear box, and sidecar, very comfortable machine, been perfectly kept in splendid order and condition; £47; deferred payments arranged.—Jones, Garage, Broadway, Muswell Hill. [7091]



Just got it at **LAMB'S**

SECOND-HANDS.

- 6 h.p. **ENFIELD** 1916 Com., speedometer, hood, screen £85 0
- 6 h.p. **ENFIELD** 1916 Com., scarcely used, and accessories £85 0
- 3½ h.p. **P. & M.**, 1914, and P. & M. coach Sidecar, perfect condition £55 0
- 2½ h.p. **CONNAUGHT**, 1916, only shop-soiled, lamp, horn £29 10
- 2½ h.p. **RADCO**, 1914, single-speed £15 1s
- 2½ h.p. **DOUGLAS**, 1914, 2-sp., excellent order £44 10
- 2½ h.p. **JAMES**, 1915, 2-sp., new tyres, accessories £25 10
- 4 h.p. **TRIUMPH**, 1914, 3-sp., and Swan Sidecar, heap accessories £49 10
- 6 h.p. **MATCHLESS**, 1912, 2-sp., and coach Sidecar £29 10
- 3½ h.p. **HUMBER**, 1912, 2-sp., and Sidecar, many accessories £25 10
- 4½ h.p. **B.S.A.**, model H, 1916, Swan Sidecar, hood, Lucas 70/- lamp, Miller's tail lamp, Lucas horn, Stewart speedometer £68 10
- 3½ h.p. **ROVER**, 1913, T.T. model, all access., long exhaust pipe, 2 lamps .. £32 10
- 2½ h.p. **ALLDAYS ALLON**, 2-sp., clutch model, all accessories £36 10
- 2½ h.p. **NEW HUDSON**, late 1914, 2-sp. .. £23 10
- 2½ h.p. **A.J.S.**, 1915, 2-sp., k-start, hand clutch, new tyres £44 10
- 2½ h.p. **COVENTRY EAGLE**, 2-sp., 2-str., superior finish, special price £39 10
- 2½ h.p. **JUNO-VILLIERS**, 1916, mileage about 100, accessories £33 10
- 4½ h.p. **B.S.A.**, model H, and Phoenix Sidecar, screen, mileage 700 £68 10
- 7-9 h.p. **HARLEY-DAVIDSON**, mod. 16F, and Canoelet Sidecar, big F.R.S. set £89 10
- 3 h.p. **ENFIELD**, 2-sp., k/start, ridden 1,500 miles only £43 10
- 3 h.p. **ENFIELD**, 1915, 2-sp., T.T. handle-bars, mileage 1,000 £43 10
- 3 h.p. **ENFIELD**, 1916, 2-sp., k/start, Standard equipment £45 10
- 7 h.p. **MATCHLESS**, 1914, model 8B, and new Canoelet Matchless Sidecar, and accessories, splendid condition £73 10
- 3 h.p. **ROVER**, dry battery ignition ... £7 1s
- 2½ h.p. **CALTHORPE-J.A.P.**, 2-sp., and accessories, ridden about 400 miles .. £35 10
- 7-9 h.p. **HARLEY-DAVIDSON**, mod. 16F, 1916, elec. equip., mileage 1,975, 2 sidecar lamps, speedometer, with genuine H.D. Sidecar £92 10
- 6 h.p. **ENFIELD** Tradesmen's Comb., all accessories, mileage about 400 £87 10

CARS.

- SAXON**, 1915, 11 h.p., 2-seater, Stepney, speedometer, lamps £112 10
- BELSIZE**, late 1914, 10-12 h.p., Commercial Car, mileage 6,000 £185 0

DEFERRED TERMS if desired; 5% extra. Payable quarter down and balance in 12 monthly instalments. Substantial discounts if cleared within 1, 3, or 6 months.

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151, HIGH ST., WALTHAMSTOW, N.E.
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Also at 50, HIGH RD., WOOD GREEN, N.
 (Only depot in this district).
 Phone: Hornsey 1956.
 Hours—9 to 8.30.
 Thursdays, 1 o'clock.

MOTOR CYCLES FOR SALE.

Premier.

PREMIER 2½h.p. Lightweight, late model, complete and little used; accept £20.—Layton's Garage, Bicester, Oxon. [7073]
RIDER TROWARD, 78, High St., Hampstead.—1914 Premier, 2-speed countershaft gear, 3½h.p. good order; 27 gns. [6970]
19 14 Premier, 2½h.p., 3-speed, clutch, all accessories; £24.—Smith, 16, Haverstock Hill, opposite Chalk Farm Tube Station. [7053]
19 13 3½h.p. Premier, new tyres, tubes, belt, engine excellent order; £19/10.—D. Geary, 76, Fife St., Winobank, Sheffield. [X4116]
19 12 Premier Motor Cycle and Sidecar, 3½h.p., 2-speed, free engine, kick start; £28.—Corrie, 64, Claylands Rd., Clapham, S.W. [6916]
CHEAPEST Bargain ever offered.—4h.p. twin Premier, 1913, clutch model, overhead valves, new tyres and belt, just overhauled by makers, condition throughout as new, £8 worth accessories on handle-bars; accept £24, or with 10 gn. Millford all cane sidecar (as new), £30.—Amber House, Gloucester Rd., Chesterfield. [X4134]

Quadrant.

QUADRANT, 3½h.p., Bosch, B. and B., spring forks, good tyres; £12.—Bromley, Appledore Station, Kent. [X4204]
QUADRANT, 3½h.p., spring forks, mag., good tyres and belt, good order, and fast; £12.—14, Dodbrooke Rd., West Norwood. [0872]
QUADRANT, 1912, 4h.p., 2-speed, and sidecar. £29/10; 1913 7-9h.p., countershaft gear, chain drive, coach sidecar, £45/10.—Motor Exchange, Horton St., Halifax. [6673]

Radco

RADCO, 1916, countershaft, 2-speed, mileage under 200, like new, fully equipped; bargain, 25 gns.; must sell.—136, Dalmainly Rd., Croydon. [6928]

Regal.

REGAL Precision, 2½h.p. T.T. model, Kempshall tyres, first-class condition; £16/10.—21, Fulham Rd., Sparkhill, Birmingham. [X4199]

Rex.

REX 6h.p. Twin, Bosch, free engine, B. and B., spring forks; bargain, £10/10.—Lornie, Alrth. [X4173]
REX, 3½h.p., sound throughout, good tyres; £5, no offers; worth double.—14, Dodbrooke Rd., West Norwood. [0879]
REX, 3½h.p., mag., spring forks, re-enamelled, good tyres, in good order; £10.—Head, 31, Hainthorpe Rd., West Norwood. [0869]
REX 5-6h.p. Combination, Bosch, 2-speed, handle starting, excellent condition, Carrol coach sidecar; £19/10.—Stanworth, Old Tong Fold, Bacup. [X4207]
REX, 5h.p., underslung sidecar, waterproof mag., Amac carburetter, belt and tyres nearly new, in perfect running order; offers.—58, Tranmere Rd., Earlsfield. [6892]
REX 5-6h.p. Twin Combination, 2 speeds, free, handle start, Bosch, B. and B., nearly new tyres, spare valves; trial run; £23, no offers.—Ridehalgh, Inkerman St., Bacup. [6993]
REX, 1913, bought June, 1914, 6h.p. twin combination, 3-speed, kick starter, coachbuilt sidecar, complete with lamps, tools, etc.; £40.—Firth's, Woodbridge Rd., Moseley, Birmingham. [X4198]
REX 7h.p. Twin, handle starting, £23/10; 1913 6h.p. 2-speed Rex Sidette, £36/10; 3½h.p. mag. model, £14/10; 5½h.p. twin, £15/10.—Motor Exchange, Horton St., Halifax. [6674]
3½h.p. Rex and Sidecar, B. and B., Bosch, Dunlop 32 in. belt, 2-speed, free, kick start, nearly new tyres and tubes, lamps, horn, mirror, toolbags, good running order; trial; £25 cash.—Harding, Acomb, York. [X4058]

Rover.

ROVER, new 1917 latest combinations, solo, and T.T. models in stock.—Moss, Wem. [X4192]
ROVER, 1914, 3½h.p., 3-speed, lamps and horn, semi coach, very fast; £45.—Fryers, Hereford. [X4054]
19 14 Rover Combination, 3-speed, lamps; accept £50, offers.—Parker and Son, St. Ives, Hunts. [7042]
ROVER Combination, 3½h.p., 3 speeds, and clutch, perfect order; £45.—Piercy, 255, High St., Hounslow. [6797]
ROVER.—Two new 1917 models, 3½h.p., 3-speed countershaft, complete.—Davies, Green Garage, Barmouth. [7044]
ROVER 3½h.p. Clutch Model, sound but not smart; £16, bargain; must clear.—Layton's Garage, Bicester, Oxon. [7075]
BIRMINGHAM Agent for Rovers, P. J. Evans, John Bright St.—1917 models in stock for immediate delivery.—See below.
19 17 3½h.p. Rover Coachbuilt Combination, 3-speed countershaft gear and De Luxe sidecar; 85 gns.—Below.
19 17 3½h.p. Rover, sporting model, racing or semi racing handle-bars; £56/10; extra for hand-controlled Philipson pulley, £4/10.—P. J. Evans, John Bright St., Birmingham. [X4170]

MOTOR CYCLES FOR SALE.

Rover.

ROVER, 1915, nearly new, horn, lamps, tools, complete; £45.—Linging, Melview, Old Shoreham Rd., Prestonville, Brighton. [6831]

ROVER, 3½h.p., T.T. special, 3-speed, and clutch, very fast, a real sporting bike; £30.—Longman Bros., King St., Acton. [7100]

ROVER, T.T., 1913, perfect running condition, tyres new, fast, been taken care of; £19.—Shaw, Blonay, Westbury Rd., Woodside Park, N. [7023]

ROVER, 1915, 3½h.p., 3-speed countershaft, Lucas lamp set and horn, fine condition; £47; with sidecar £5 extra.—Pike, 102a, Church St., Chelsea. [6861]

ROVER.—New models in stock; 3h.p. countershaft 3-speed £69/10, also 3½h.p. with Philipson pulley, T.T. bars, £61/10; cash, exchange, or deferred payment terms quoted.—Elce and Co., 15-16, Bishopsgate Av., Camomile St., E.C. [0481]

ROVER, late 1914, 3½h.p., 3-speed, and clutch; this has had most careful attention, and is equal to new, straight from the original owner to us, engine completely overhauled, and a guaranteed machine; real bargain, £36.—Longman Bros., King St., Acton. [7099]

Royal Ruby.

RIDER TROWARD, 78, High St., Hampstead.—Royal Ruby, 2-speed, 2-stroke; 18 gns. [6971]

ROYAL Ruby, one only, brand new 1916 2½h.p. light-weight, Villiers 2-stroke engine, Dunlop heavy rubber studded tyres; £29/10 cash, a real bargain.—The Premier Motor Co., Aston Rd., Birmingham. [6848]

Rudge.

3½h.p. Rudge Multi; £60; cash or easy terms.—R. E. Jones (Garages), Ltd., Swansea. [0864]

1912 3½h.p. Rudge, free engine, good condition; £25.—R. E. Jones (Garages), Ltd., Swansea. [0785]

RUDGE, 3½h.p., 1914, good condition, little used.—Curtis, Longcroft, Maple Rd., Harpenden. [X4015]

RUDGE, 1912, 3½h.p., 2-speed, coach sidecar, £29/10; 1913 3½h.p. Rudge Multi, new coach sidecar, £37/10.—Motor Exchange, Horton St., Halifax. [6672]

LATE 1914 Rudge Multi and sporting Bramble sidecar, lovely condition throughout, had little use; any trial; sacrifice £36; absolute gift.—Else, Dimple, Matlock. [X4131]

3½h.p. Rudge Multi, F.E., clutch model, lamps, horn, mirror, all accessories, perfect condition; bargain, £26, or offer.—H. W. Warner, 136, St. Anne's Rd., South Tottenham, N. [7003]

RUDGE Multi, 1916, 3½h.p., was supplied new by us June last, mileage about 1,000; it has been continually under our notice, and we can vouch for its condition; equal to new, and only a little soiled; great bargain, £42/10.—Longman Bros., King St., Acton. Phone: 1578 Chiswick. [7098]

Sarolea.

5-6h.p. Sarolea, 2-speed, B. and B. carburetter, tyres good order; £10.—Bourne, Grocer, Canterbury. [X3931]

Scott.

COLMORE Depots, Birmingham and Manchester, for Scott motor cycles. [0806]

SCOTT, 3½h.p., 2-speed, new tyres and chains; sacrifice £28.—E.T., 9, Hamlet Rd., Chelmsford. [X4122]

SCOTT, 2-speed, kick start, good condition; bargain, £14.—Apply after 6 p.m., 12, Roslin Rd., Acton. [X4038]

SCOTT, 1911, twin engine, 3½h.p., 2-speed, water-cooled, chain drive, good tyres, lamps, horn, tools; £25; owner under orders.—Sergeant Turner, 118, Oakridge Rd., High Wycombe. [X4096]

THREE Scotts.—One 1913 T.T. 2-speed, 28 gns.; one 1913-14 T.T. 2-speed with underslung sporting sidecar, 34 gns.; one 1914-15 model, perfect, 38 gns.—Troward, 78, High St., Hampstead. [6960]

3½h.p. Late 1915 Scott and coachbuilt sidecar, develops 6h.p., kick start, 2-speed, clutch model; cost £95; good as new, complete with accessories; £55, or near offer.—Lieut. Morten, Carwood House, Overstrand Norfolk. [6917]

Singer.

2½h.p. Singer, Bosch, h.b.c., low, good condition; £8/15.—52, Latimer Rd., Forest Gate. [6836]

SINGER, 2½h.p., clutch model, sound but not smart; £18.—Layton's Garage, Bicester, Oxon. [7074]

SINGER, 1913, 3½h.p., 3 speeds; coach sidecar; £33/10.—Motor Exchange, Horton St., Halifax. [6675]

3½h.p. Singer, 1912, clutch model, perfect running order; £20, or nearest offer.—Donnelly, 26, Valnav St., Tooting. [7038]

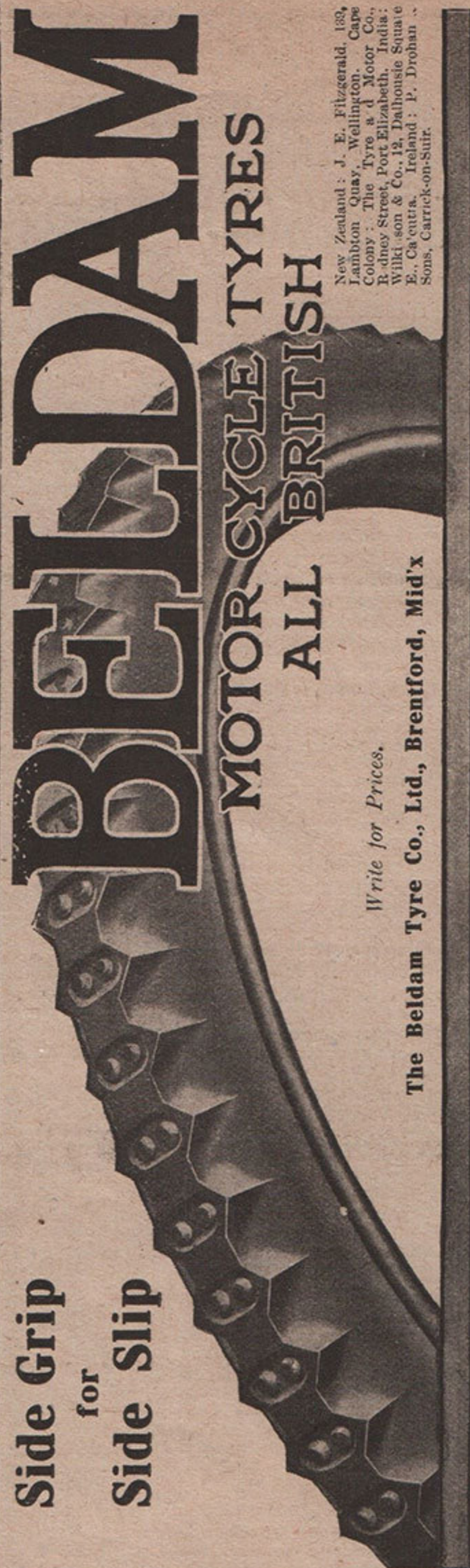
SINGER, 1914, 2½h.p., free engine, good tyres, new belt; £19; called up.—Portlock, Terriers, High Wycombe, Bucks. [6811]

RIDER TROWARD, 78, High St., Hampstead.—1913 Singer, 2½h.p., new tyres, overhauled, many accessories; 16 gns. [6965]

SINGER, 2h.p., Druid forks, B. and B. carburetter, Bosch mag., M.A.G. engine, accessories, enamel and plating as new; £18.—Head, 31, Hainthorpe Rd., West Norwood. [6938]

Sparkbrook.

LATEST Model Sparkbrook Lightweight, 2-speed, T.T. model; £40.—Clark and Co., Motor Engineers, Doncaster. Phone: 176. [6841]



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MOTOR CYCLES FOR SALE.

Sun.

RIDER TROWARD, 78, High St., Hampstead.—1915 Sun-V.T.S., 2-speed, perfect; 24 gns. [6968]

COLMORE Depots, Birmingham and Manchester, for delivery from stock of all models of Sun motor cycles. [0807]

SUN-VILLIERS Model de Luxe, 2-stroke, absolutely new; sacrifice £25.—108, Runcorn Rd., Moseley, Birmingham. [X4063]

Sunbeam.

E. KICKHAM, Stokes Croft, Bristol.—1915 3½h.p. Sunbeam, all accessories, just overhauled; a bargain, £55. [X3926]

1915 3½h.p. 3-speed Sunbeam Combination, fully equipped, excellent condition; £80; cash or easy terms.—R. E. Jones (Garages), Ltd., Swansea. [0862]

1914 3½h.p. Sunbeam with coachbuilt sidecar, all in fine order and condition; £52/10; deferred payments or exchanges.—Jones, Garage, Broadway, Muswell Hill. [7092]

1916 3½h.p. 3-speed Sunbeam, 2 Lucas lamp sets, mechanical horn, Dunlops, ridden under 1,000 miles, condition guaranteed; £75.—Robinson's Garage, Green St., Cambridge. [7059]

SUNBEAM, late 1914, 6h.p., luxurious Gloria sidecar, 5 attachments, speedometer, 3 lamps, horn, watch, all exceptionally fine condition; £80, near offer; after 7.—S., 54a, Redcliffe Sq., Earl's Court. [X4148]

1916 7-9h.p. M.A.G. Sunbeam Combination, very little used, in perfect condition, hood, screen, lamps, speedometer, and spare wheel and tyre; £125, or exchange.—Colmore Depot, 211, Deansgate, Manchester. [6891]

SUNBEAM, 1914 (late), 6h.p., 3-speed, lamps, horn, speedometer, with Burbury sidecar, special chassis, adjustable wind screen, good condition; bargain, £82.—Elce and Co., 15-16, Bishopsgate Av., Camomile St., E.C. [0492]

SUNBEAM, 3½h.p., 1916, for sale, semi T.T. handlebars, new spare inner tube, lamps, speedometer, etc., very little used, perfect, Russian War Office model; will accept 70 gns. for quick sale.—Apply, J. Weiner, 32, Shaftesbury Av., W.C. [6854]

3½h.p. 1915 Sunbeam and De Luxe Sidecar, fitted with Lucas lighting set, tools, a complete up-to-date combination, condition absolutely as new, including finish and mechanical parts and sidecar, handsome turnout, ready for the road, and fully guaranteed; 80 gns.—Wauchope's, 9, Shoe Lane, London. [6942]

Swift.

SWIFT, 3½h.p., 1911, with light sidecar, powerful engine, excellent running order, good tyres, small mileage, decompressor, Multi pulley, accessories; £22.—Pearson, Wayside, Monmouth. [X3930]

T.D.C.

3½h.p. T.D.C., with Armstrong 3-speed gear and free engine, and all latest fittings, with coachbuilt sidecar, in good condition; cheap.—46, Moss Lane, Bramhall, Cheshire. [X4121]

Torpedo.

TORPEDO-PRECISION 2-speed Lightweight, recently overhauled; £16/10.—Motor Exchange, Horton St., Halifax. [6676]

Triumph.

1913 Triumph and sidecar, 3-speed; £35.—Ross, 86, High Rd., Lee. [6790]

TRIUMPH, 1911, clutch, nice machine; £20.—11, Luna Rd., Thornton Heath, S.E. [7027]

3½h.p. Triumph, clutch model, in fine order; £20, no offers.—14, Dodbrooke Rd., W. Norwood. [0874]

TRIUMPH, clutch model, 1914; first £25.—W. and H. Motor Co., Ltd., 287, Deansgate, Manchester. [6591]

TRIUMPH Junior, equal to new condition, tyres and accessories likewise; 30 gns.—Bunting, Harrow. [6774]

3½h.p. Triumph, clutch model, perfect condition; £24.—Apply by letter, Oaklea, Cheapside, Woking. [7035]

TRIUMPH, 3½h.p., hand clutch, perfect condition throughout; 12 gns.—245, Hammersmith Rd., London, W. [6907]

TRIUMPH, 1912, 3½h.p., clutch, excellent condition, with lightweight sidecar; £25.—Fortin, Stapleford, Cambs. [X4097]

TRIUMPH, 3½h.p., 1912, plate clutch, good tyres, good order, and fast; £19.—14, Dodbrooke Rd., West Norwood. [0873]

TRIUMPH, T.T., 3½h.p., late 1910, with Lucas lamps; £19/10.—Bentley, Medcalf Rd., Enfield Lock, Middlesex. [X4089]

BABY Triumph, very good condition, engine just overhauled by makers, lamps, etc.; £32.—Bull, St. Giles' Sq., Northampton. [X4130]

1908 Triumph, 3½h.p., Bosch, B. and B., grand order; ride reasonable distance; £15.—Howe, 9, Broughton Rd., Ipswich. [6798]

TRIUMPH, 3½h.p., 1912, free engine, perfect condition, £24; sidecar, £3/10; appointment only.—21a, Broadway, Stamford Hill. [7017]

LATE 1914 3-speed Triumph, with Montgomery sidecar, fully equipped, and as new, done 2,000; £47/10.—20, Whitley St., Reading. [7110]

New Zealand: J. E. Fitzgerald, 189, Lambton Quay, Wellington, Cape Colony: The Tyre & Motor Co., Rodney Street, Port Elizabeth, India: Wilkison & Co., 12, Dalhousie Square, E., Calcutta, Ireland: P. Drohan Sons, Carrick-on-Suir.

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MOTOR CYCLES FOR SALE.

Triumph.

TRIUMPH, 1911, condition and enamel equals 1915, Palmers, new belt, F.R.S. lamp, horn, done 2,500; £16.—38, Belgrave Gate, Leicester. [X4152]

TRIUMPH, 3 1/2 h.p., slight score in cylinder, otherwise in good condition, mag.: £14, nearest offer.—Langfield, Red House, Cranham, near Stroud. [7004]

1912 Triumph, clutch model, little used, exceptionally fine condition throughout; £28; Scott or other twin wanted.—86, Corporation St., Stafford. [6851]

3 1/2 h.p. Triumph and Sidecar, 1913 1/2, Sturmev-Archer 3-speed gear, clutch, accessories; worth £45, accept £37/10, offers.—Lloyd, Cromford Rd., Ripley, Derbyshire. [6850]

TRIUMPH, 1914, T.T., 3-speed, very fast, lamps, horn, perfect condition, spare tyres, tubes; £45; leaving for Front.—Bomb. Arm, Royal Horse Artillery, Maltby, Alford, Lincolnshire. [X4016]

TRIUMPH, 1907, £16/10; 1909, £19/19; 1909 2-speed, £22/10; 1910, £21/10; 1911, £22/10; sidecar, £3 extra; close cash offers considered.—Motor Exchange, Horton St., Halifax. [6677]

TRIUMPH, 1914, 4 h.p., 3-speed, and coachbuilt sidecar, P. and H. lamps, mechanical horn, Jones speedometer, Dunlop tyres and belt, all in perfect condition; sell 43 gns.—R. Selby, Portland Rd., Wyke Regis, Weymouth. [X4132]

SIX Triumphs, one 3 1/2 h.p. clutch model, 12 gns.; one 3 1/2 h.p. 3-speed and sidecar, 19 gns.; one 1913 T.T., re-enamelled, overhauled, new tyres, perfect, 29 gns.; one 1913 T.T. special, overhead valve model, disc wheels, hand controlled Philipson, very fast, 31 gns.; one 1914-15 T.T. clutch model, mileage 600, unscratched, 37 gns.; one 1915 T.T. special, has done 73 on Brooklands, steel piston, dual ignition, fully equipped, 41 gns. Exchanges. Phone: 5392.—Troward, 78, High St., Hampstead. [6959]

Velocette.

VELOCETTE, special New Year bargain.—Slightly soiled 1916 2 1/4 h.p. 2-speed 2-stroke lightweight, chain drive, with efficient chain guards, 120 m.p.g. guaranteed, suitable for lady, electric head lamp, tail lamp, and horn; £30.—The Premier Motor Co., Aston Rd., Birmingham. [6849]

Werner.

WERNER 2 h.p. Lightweight, good tyres, Bosch, Amac, spring forks, good condition and order; £10.—Head, 31, Hainthorpe Rd., West Norwood. [0877]

White and Poppe.

3 1/2 h.p. White and Poppe, good condition, Mabon; £15/10.—Wood, 79, Tottenham Rd., Palmer's Green. [7034]

Williamson.

1914 Williamson Combination, 8 h.p., w.c., hood, screen, perfect condition; £65.—Box 509, c/o The Motor Cycle. [X4061]

WILLIAMSON 8 h.p. Combination, 1914, kick starter, new tyres, just overhauled; £72.—Box 510, c/o The Motor Cycle. [X4062]

WILLIAMSON, 1915, 8 h.p., water-cooled, counter-shaft, kick starter, C.B. sporting sidecar, disc wheels, accessories; £65; exchange light car.—28, Transmere Rd., Earlsfield. [X3918]

Wolf.

1914 Wolf, 2-stroke; £16; good order.—Ross, 86, High Rd., Lee. [6788]

WOLF, 2 3/4 h.p. Peco engine, 2-stroke, 2-speed, new July, 1916, not done 300 miles; £28.—Apply, Box L2,871, c/o The Motor Cycle. [6820]

TWIN Wolf, 2 3/4 h.p., lamps, horn, glass, new belt, in thorough running order, good condition; would take sidecar in part payment, or £15.—Humphrey, King's Arm, Wantage. [6991]

Zenith.

ZENITH, 1914, 9-11 h.p., nearly new; £68.—89, Abbey Rd., St. John's Wood, N.W. [6957]

3 1/2 h.p. Zenith, excellent condition; £26; trial given.—32, Overton Villas, Dorchester Rd., Weybridge, Surrey. [7032]

ZENITH 6 h.p. Twin and sidecar, with accessories, 1913; £35, or near offer.—Box L2,883, c/o The Motor Cycle. [6923]

ZENITH-GRADUA, 1914, 4 h.p., coachbuilt sidecar, perfect throughout; 35 gns.—245, Hammersmith Rd., London, W. [6908]

ZENITH, 1912, 3 1/2 h.p., Gradua gear, J.A.P. engine; £19/19, special bargain.—Motor Exchange, Horton St., Halifax. [6678]

ZENITH, August, 1915, 6 h.p., countershaft, lamps, speedometer, spares; £50.—89, Abbey Rd., St. John's Wood, N.W. [6956]

ZENITH-GRADUA, April, 1915, 4-5 h.p. model G, with 26x2 1/2 wheels, excellent condition; £45.—Carr, Greystead, Carlisle. [X4017]

1914 8 h.p. Zenith-Gradua, coachbuilt sidecar, T.T. bars, revarnished by maker, property of officer going to the Front; £45.—H. Garstang, Electric Garage, Blackburn. [X3793]

1912 6 h.p. Zenith, in good order, only wants clean-ing and enamelling, no bad worn parts or anything broken; a cheap lot, £25, with cane sidecar.—Jones, Garage, Broadway, Muswell Hill. [7093]

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2 1/2 h.p. ENFIELD, 2-speed	£20 0
2 1/2 h.p. O.K.-PRECISION	£16 0
2 1/2 h.p. TORPEDO, 2-stroke	£18 10
2 1/2 h.p. ROYAL RUBY, 2-speed	£26 0
3 h.p. WANDERER, twin, spring frame	£20 0
2 1/2 h.p. WOLF, 1915, good condition	£20 0
3 1/2 h.p. RUDGE, N.S.U. 2-speed	£20 0
2 1/2 h.p. WOOLLER, 2-stroke, 1914	£22 10
2 1/2 h.p. RADCO, 1916, 2-speed, as new, all accessories	£27 10
2 1/2 h.p. LEVIS, 2-stroke, fine machine	£20 0
2 1/2 h.p. IVY, 2-stroke, overhauled and guaranteed	£24 0
3 1/2 h.p. ROVER, 1914, T.T. model	£30 0
3 1/2 h.p. BRADBURY, 1913, 2-speed, Millford Sidecar	£35 0
3 1/2 h.p. LEA-FRANCIS, twin, 2-speed	£35 0
3 1/2 h.p. SERVICE-J.A.P., 3-speed	£32 0
2 1/2 h.p. SERVICE, 2-stroke, 2-speed, guaranteed	£35 0
3 1/2 h.p. RUDGE Multi, overhauled, 1913 model	£32 10
6 h.p. ENFIELD Combination, overhauled	£50 0
2 1/2 h.p. DOUGLAS, 1915, T.T., overhauled	£42 10
3 1/2 h.p. NEW HUDSON, 1915, W.O. model, 3-speed, countershaft, kick-starter	£48 0
3 h.p. ENFIELD, 1916, done 120 miles, as new	£52 0
7-9 h.p. HARLEY and Sidecar, 1916, speedometer, etc.; done 2,000 miles	£85 0
7-9 h.p. INDIAN and Sidecar (1913), electric, spring frame	£50 0
INDIAN, 1916, Powerplus and Canoelet, done 600 miles	£92 10
6 h.p. ENFIELD Combination, 1916, guaranteed	£77 10
4 1/2 h.p. B.S.A., 1916, all accessories	£55 0
5-6 h.p. CLYNO, 1914, Sidecar, all accessories	£65 0
4 h.p. CHATER, 2-stroke, 3-speed	£18 0

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12 h.p. A.C., 1914, 3-seater, accessories	£200 0
10 h.p. ENFIELD, 1915, 4-cylinder, dynamo lighting, repainted, electric horn, speedometer	£175 0
6-9 h.p. BABY PEUGEOT, 1916 de Luxe	£165 0
6-9 h.p. BABY PEUGEOT, 1915, de Luxe, all accessories	£150 0
12 h.p. CALTHORPE MINOR, 1915, 4-seater, dynamo lighting	£265 0
A.C. MORGAN, 1914, as new	£75 0

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MOTOR CYCLES FOR SALE.

Zenith.

ZENITH Combination, only few weeks old, beautifully equipped; owner called up; £70; open to consider part exchange.—Bunting, Harrow. [6777]

ZENITHS.—P. J. Evans, John Bright St., Birmingham. Immediate delivery 4-5 h.p. countershaft model; prompt delivery all other models. [X4161]

ZENITH, 1913, 6 h.p., and Gloria sidecar, complete with lamps, horn, speedometer, also pair new cylinders, connecting rod, and crank pin; the lot a bargain, £40.—28, Woodsley Grove, Leeds. [X4012]

ZENITH, 1914, 6 h.p., re-enamelled and plated, lined gold, in every way equal to new, cost £10 to renovate; great bargain, £42.—Longman Bros., King St., Acton. Phone: 1578 Chiswick. [6756]

ZENITHS.—New models in stock; 6 h.p. model F £84/5, 8 h.p. model H £85/9; cash, exchange, or deferred payment terms quoted.—Elce and Co., 15-16, Bishopsgate Av., Camomile St., E.C. [0491]

ZENITH 1915 6 h.p. Clutch Model, enamel and plate unscratched, mechanical condition perfect, expert examination, lamps, speedometer, tools and spares, with Millford coachbuilt sidecar; £65.—Jenkins, 94, Llewellyn St., Pentre, Glam. [X4172]

Ladies' Motor Cycles.

NEW 1916 Royal Ruby Lady's Motor Bicycle; cost £45, accept £27.—Box L2,828, c/o The Motor Cycle. [4882]

2 3/4 h.p. Lady's Douglas, 2-speed gear model, 1915 machine, kick start and clutch, in most excellent condition; £52/10.—Wauchope's, 9, Shoe Lane, London. [6949]

DOUGLAS, 2 3/4 h.p., late 1914, 2-speed, clutch, kick starter, footboards, Lucas lamp set, in new condition, been carefully ridden; £35.—Ray, 32, Upper-ton Rd., Eastbourne. [6807]

Miscellaneous

FARRAR'S.—Lady's Douglas, 2-speed model, Anco goer, very good tyres; £25.

FARRAR'S.—1914 6 h.p. Bradbury coachbuilt com- bination, countershaft 3-speed gear, kick starter, speedometer, lamps, etc.; sacrifice £55.

FARRAR'S.—5 h.p. twin Rex, variable pulley, wicker sidecar, Bosch mag., B. and B. carburetter, fine goer; sacrifice £14/14.

FARRAR'S.—5 h.p. Rudge Multi, big single-cyl., Multi gear, kick starter; sacrifice £32.

FARRAR'S.—1916 5-6 h.p. big single English Excel- sior, countershaft 3 speeds, kick-starter, shop-soiled; sacrifice, £64.

FARRAR'S.—1916 2 3/4 h.p. Omega-Jap, countershaft 2 speeds, shop-soiled; sacrifice, £33.

FARRAR'S.—1914 3 h.p. Omega 2-stroke, £16; 3 1/2 h.p. Minerva, good goer, £8.

FARRAR'S.—3 3/4 h.p. Scott and smart sidecar; £30. —Farrar's Motories, Hopwood Lane, Halifax. [7095]

BOOTH'S Motories, Portland Place, Halifax.—De- tailed list of motor cycle bargains free.

HARLEY-DAVIDSON, 7-9 h.p., fitted with £22/10 coupe Fitsu sidecar; £69/10.—Booths Motories.

NEW Imperial-Jap, 2 1/2 h.p., 1915, 2-speed countershaft gear, Binks carburetter; £25/15.—Booths Motories, Halifax.

RUDGE Multi, 3 1/2 h.p., 1913, fitted with cigar-shaped sidecar; £28/15.—Booths Motories.

EXCELSIOR, 2 3/4 h.p., 2-stroke, 1916, only run about 500 miles; £24/15.—Booths Motories.

TRIUMPH, 3 1/2 h.p., 1910, 2-speed, very low riding position; £17/10.—Booths Motories, Halifax.

JAMES, 4 1/4 h.p., 1912, 2-speed, chain drive, coach sidecar; £28/15.—Booths Motories, Halifax.

PREMIER, 3 1/2 h.p., 1913, 2-speed countershaft, chain and belt drive; £26/15.—Booths Motories.

REX, 6 h.p., 2-speed, mag., spring forks, good tyres, B. and B.; £11/15.—Booths Motories.

LINCOLN-ELK, 3 h.p., 1911, mag., Druid forks, good tyres; £11/15.—Booths Motories.

HUMBER, 3 1/2 h.p., 1913, 2-speed, handle starting, enamel splendid condition; £28/15.—Booths Motories.

TWIN Premier, 8 h.p., 1914, 2-speed countershaft; £18/18 coach sidecar; £49/15.—Booths Motories.

TRIUMPH, 1910, free engine, T.T. bars, good tyres; £18/10.—Booths Motories, Halifax.

B.S.A., 1911, 3 1/2 h.p., Grado variable gear, nice con- dition; £22/10.—Booths Motories, Halifax.

RUDGE, 1912, P. and M. gear, belt and chain drive; £25/15.—Booths Motories, Halifax.

TWIN N.S.U., 6 h.p., 1910, 2-speed, with sidecar; £18/15.—Booths Motories, Halifax.

DOUGLAS, 1913, 2-speed, T.T. bars; £30.—Booths Motories, Portland Place, Halifax.

B.S.A., 4 1/4 h.p., 1915, 3-speed, run 1,200 miles; £55. —Booths Motories, Halifax.

HARLEY-DAVIDSON, 9 h.p., brand new 11J. elec- trically equipped; £80.—Booths Motories.

PREMIER Lightweight, 1912 model, 2 3/4 h.p., 3-speed; £16/15.—Booths Motories, Halifax.

TRUMBULL Light Car, 1915, 3 speeds, hood, screen, lamps; £94.—Booths Motories, Halifax. [6986]

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MOTOR CYCLES FOR SALE.

Miscellaneous.

- WANDSWORTH Motor Exchange.**—Easy terms only quarter down, balance 12 monthly payments.
- WANDSWORTH.**—Levis, 1916, 2½h.p., mag., 2 speeds, like new; only £33/10; exchanges.
- WANDSWORTH.**—T.D.C. 1916 De Luxe, 2½h.p., mag., almost new; £23/10; exchanges.
- WANDSWORTH.**—Zenith 1914 6h.p. twin, mag., nearly new tyres, beauty; 38 gns.; exchanges.
- WANDSWORTH.**—Enfield, 1916, dynamo lighting, coach combination, 6h.p., magnificent lot; 78 gns.; exchanges.
- WANDSWORTH.**—Harley-Davidson 1915-16 coach combination, 7-9h.p., fine turnout, complete; 62 gns.; exchanges.
- WANDSWORTH.**—Williamson 1915 coach combination, 8h.p. (water-cooled), all complete; bargain, 60 gns.; exchanges.
- WANDSWORTH.**—Chater-Jap coach combination, 5 h.p. twin, 2 speeds; clearance £16/16; exchanges.
- WANDSWORTH.**—N.S.U. 1914 3h.p. twin, mag., 2 speeds, beautiful order; £25; exchanges.
- WANDSWORTH.**—Royal Enfield 1914 coach combination, 6h.p., everything on, complete; 58 gns.; exchanges.
- WANDSWORTH.**—Dayton, 1915, 2h.p., mag., only ridden few miles; gift, £18/18; exchanges.
- WANDSWORTH.**—Bat-Jap 1913 7h.p. twin, mag., fine powerful machine; £19/19; exchanges.
- WANDSWORTH.**—Matchless-Jap, 1913, 4h.p., mag., good order; almost gift, £21; exchanges.
- WANDSWORTH.**—Rex, 1912, 4h.p., mag., good tyres, very low built; £14/10; exchanges.
- WANDSWORTH.**—Lincoln-Elk, 3-3½h.p., mag., good tyres, ready ride away; £12/15; exchanges.
- WANDSWORTH.**—F.N., 4-cyl., mag., dropped frame, spring forks; only £12/15; exchanges.
- WANDSWORTH.**—Sidecar, 1916 Derwent, under-slung, coachbuilt, like new; £8/15; exchanges.
- WANDSWORTH.**—Coronet coach sidecar, good tyre, side door; great bargain, £3/17/6; exchanges.
- WANDSWORTH.**—Duo 1914 sporting 2-seater, 8-10 h.p., mag., disc wheels, beauty; 48 gns.; exchanges.
- WANDSWORTH.**—Easy terms.—Wandsworth Motor Exchange, Ebner St., Wandsworth (Town Station). Phone: Battersea 327. [6791]

31 h.p. Motor Cycle, good running order, new tyres; £7/15.—Apply, Manager, Hove Seaside Villas, Portslade, Brighton. [6853]

COMBINATION, 6h.p., late 1916, mileage 450, as new, accessories; £75; exchange 1916 Morgan Luxe, cash adjustment.—C., 122, Craven Rd., Rugby. [X4123]

1915 2½h.p. Douglas, all accessories, £42/10; 1912 Scott and sidecar, £29/10; 1914 Zenith and sidecar, £49/10.—Letters, Kingston Garage, Gibraltar Rd., Halifax. [X4216]

LONGMAN Bros., King St., Acton. Phone: 1578 Chiswick.—We have some really special bargains. Buy from us, and you will be satisfied. Expert advice, free instruction, exchanges, and fair dealing. See machines under Rover, Rudge, and Zenith columns. Immediate delivery of a few new machines. Write, phone, or call. [7101]

RIDER TROWARD and Co. have advertised to-day in smalls columns six Triumphs, three Scotts, two Enfield combinations, two Harley-Davidson combinations, two Douglases, B.S.A., Henderson combination, Singer, Excelsior, Lincoln-Elk, Premier, Lugton-Precision, Brown, Ariel, L.M.C., Levis, Royal Ruby, Ivy, Sun-V.T.S., and Alldays-Allon; also in stock thirty others, including three Rudges, Indian, Whiting, Williamson, Matchless, Bradbury, Clyno, New Hudson, Omega, Kerry, N.S.U., Martin-Jap, Zenith, F.N., etc., £8 to £80; exchanges. Phone: 5392.—78, High St., Hampstead. Open 8 p.m. and Sundays One min. Tube. [6977]

HEBDEN'S can deliver from stock 1917 new models, Enfields, 2½h.p., 3h.p., 6h.p., and 8h.p.; New Imperials, 2½h.p. 2-speed and 2-speed clutch and kick-starter, ladies' and gent.'s; Royal Ruby, 2½h.p. 2-speed; 1916 2½h.p. 2-speed Enfield, not run 50 miles, fit complete, £41, a gift; Rudge, 3½h.p., 2-speed, free engine and coachbuilt sidecar, £28; Premier, 2½h.p., 3-speed, free engine, clutch, and unscratched, £19; Fairy, 2½h.p., perfect, £9; B.S.A., standard model, perfect, one £18, one £19; 1914 3½h.p. B.S.A., T.T. model, as new, only wants seeing, £31, a real bargain; all second-hand motors fit complete lamps, etc., and guaranteed.—Hebden's Motor Mart, St. James's St., Burnley. Tel.: 488. [6951]

SIDECAR ATTACHMENTS.

1915 Burberry Coachbuilt Scott Sidecar; £7/10; exchange Sunbeam cycle.—Boydell, Euxton, Chorley. [X4078]

CIGAR Pattern Sidecar, £4/10; also semi-canoe with side door, £4.—Smith, 199b, King St., Hammer-smith. [7000]

PERFECTION Coachbuilt Sidecar, to suit all leading makes, from £9/15.—Motories, 68, Horton St., Halifax. [7050]

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TRUMBULL 2-seater Light Car, complete with dickey, electric lamps, electric and hand horns, speedometer, hood, screen, and tools, used very little, and in beautiful order; £115; would accept a good motor cycle or combination in part payment.—Layton's Garage, Bicester, Oxon. [7064]

BARGAINS.—Fifty cars, all in first-class order, must be cleared at auction prices, including: 8h.p. Darracq van, £10; 6h.p. Rover 2-seater, late model, £25; 15h.p. 4-cyl. Brown chassis, £25; 10-12h.p. Darracq 4-seater, £35; 8-10h.p. Jackson sporting 2-seater, £45; Ford 4-seater, £65; 16h.p. Argyll wide 3-seater, £85; 11h.p. Brixia-Zust streamline 2-seater, £90; 15h.p. Standard torpedo, £100; Baby Peugeot, £115; 12h.p. 4-cyl. Rover streamline sporting 2-seater, £125; 15h.p. American light car racer, actual Brooklands winner, 80 m.p.h., £145; 10-15h.p. Isotta-Fraschini streamline 2-seater, £165; 15h.p. Calthorpe 4-seater, £185; full list of 50 on application. All seen 9 to 6, please call. Offers or good exchanges entertained.—Liquidator, 6c, Lansdowne Hill, West Norwood, S.E. [7019]

EXTENDED PAYMENTS.

EXTENDED Payments.—All makes supplied; lowest terms.—Service Co., 292, High Holborn, London. [0618]

GENERAL Insurance Co. issue Lloyd's Motor Policies by monthly payments. Lowest premiums for motor cycles. Before insuring elsewhere write for prospectus.—Head Office: 199, Piccadilly, London, W. [0810]

HALF Down Bargains.—£12/10 down buys 15h.p. 4-cyl. Brown chassis, 815 tyres; £17/10 down buys 10-12h.p. Darracq 4-5-seater; £22/10 down buys 8-10h.p. Jackson sporting 2-seater; £32/10 down buys 4-seater Ford; £42/10 down buys smart 16h.p. Argyll 3-seater; £62/10 down buys 12h.p. Rover sporting 2-seater; £72/10 down buys 80 m.p.h. Brooklands racer; similar amount by monthly payments completes purchase; 50 cars on view; please call.—Liquidator, 6c, Lansdowne Hill, West Norwood. [7018]

ENGINES.

3 1/2 h.p. Fafnir, magneto, B. and B., N.S.U. 2-speed; £8/10.—Garage, The Green, Southgate, N. [X4214]

19 12 Humber 2 1/2 h.p. Twin, with or without magneto.—Whiteley, 53, Horsley Hill Rd., South Shields. [6801]

5 6h.p. Twin Brown Engine, mechanical, with magneto; £7/10.—Ball, 49, High St., Kingston-on-Thames. [X4013]

NEW 1914 J.A.P., 4h.p., complete with new Grado Multi gear; £10.—Renniks, 165, Pentonville Rd., N. [6920]

8 h.p. J.A.P. Unit, magneto and carburetter, 1914; £14.—W. and H. Motor Co., Ltd., 287, Deansgate, Manchester. [6590]

3 1/2 h.p. Minerva Engine, complete, in good condition, silencer exhaust, carburetter, and enclosed magneto, as new; £7; deposit.—37, Arthur St., Abertyswy, Mon. [X4060]

24 h.p. 4-cyl. Porthos Engine, £12/10; 15h.p. Darracq engine, 4-cyl., £10; 10-12h.p. Loder engine, 4-cyl., £7/10; 10h.p. Cottreau twin-cyl. engine, £4; 6h.p. Clement single engine and H.T. mag., £5; 6h.p. twin Advance engine; 3 1/2 h.p. Triumph engine and mag., £10; 3 1/2 h.p. Premier engine and mag., £9; 3 1/2 h.p. Rex engine, £2; 2h.p. Triumph-Jap engine, 30/-; all engines in good condition and good running order; stamp reply.—Hawkins, 455, York Rd., Wandsworth. [7037]

IGNITION APPLIANCES.

MAGNETO. waterproof, brand new; 65/-.—64, Staines Rd., Hounslow. [6585]

BOSCH Magneto, twin, good condition; £4.—Bottom Flat, 42, North Side, Wandsworth Common. [6990]

EXPERT Magneto and Electric Repairs on the premises.—Grandex Motors, 349, Euston Rd., N.W. [3569]

MAGNETO, 21/- secures; hot and variable spark; deposit only.—Pte. P. Smith, 90, Dane Rd., Margate. [X4011]

SEVERAL Magnetos for sale, clockwise and anti-clock; state requirements.—Box L2,887, c/o The Motor Cycle. [7107]

PARKER and Rice, Magneto specialists.—Repairs and renewals to all the leading makes of magnetos; repairs guaranteed for 12 months.

PARKER and Rice have several good new and second-hand magnetos for sale, which are guaranteed for 12 months.—75, Park Rd. North, Acton, London, W. [6933]

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MAGNETO Repairs and Spare Parts, all makes. Spare parts suitable for Bosch magnetos a speciality.—Simms Motor Units, Ltd., 191, Wardour St., London, W. T.A.: Simotunit, London. [0746]

JEERON, registered 291,298, greatly superior to platinum, unequalled for blades, screws, etc.; cures misfiring; 4/6 each rivet; Jebron screws, fit Bosch magnetos, 10/- pair; old screws Jebronised, 4/6 each.

JEERON Contacts, used by Messrs. Collier Bros., Colver, Martin, making world's records.—Jebron, 38, Herbert Rd., Woolwich, London, S.E. [X4331]

MAGNETOS Repaired by skilful workmen; expedition and moderate charges; several 1-2-cyl. magnetos in stock; every magneto guaranteed.—The Magneto Mart and Repairing Co., 142, Wardour St., W. Phone: Gerrard 727. [8814]



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MOTOR CYCLE DEPOT: 173, Gt. Portland Street. 'Phone: 1970, Regent.
CAR DEPOT: 378, 380, 382, 384, EUSTON ROAD. 'Phone: 4219, Regent.

MOTOR CYCLES FOR HIRE.

1916 & 1917 New Machines in Stock. Inspection invited.

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1915 HARLEY-DAVIDSON and Sidecar....	£65	0
1915 MATCHLESS 8B Combination	£85	0
1913 RUDGE-MULTI	£35	0
1914 CLYNO 6 h.p. Combination, as new ..	£65	0
1915 VELOCETTE, 2-stroke, 2-speed	£22	0
1915 NEW IMPERIAL, all accessories	£30	0
1915 NEW IMPERIAL, all accessories	£28	0
1909 DOUGLAS	£14	0
1911 8 h.p. CHATER LEA.....		

Shop-soiled Indian spring frame Swan Sidecars, £17 10 6, and other Sidecars at bargain prices.

BARTLETT'S THE NORTON AGENTS.

- 1917 NORTON, 3 1/2 h.p. T.T., with or without Philipson pulley
- 1917 ARNO, 3 1/2 h.p., T.T.
- 1917 OMEGA-J.A.P., 2-speed..

UP-TO-DATE BARGAINS.

1915 W.D. DOUGLAS, T.T....	£47	10
1915 2 1/2 h.p. DOUGLAS, T.T....	£50	0
1914 2 1/2 h.p. DOUGLAS, T.T....	£40	0
1915 INDIAN, 5 h.p., 3-speed as new.....	£45	0
1915 ENFIELD, 3 h.p., 2-speed, as new.....	£45	0
1914 TRIUMPH, 4 h.p., 3-sp.	£45	0
1914 TRIUMPH, 3 1/2 h.p., T.T.	£30	0
1913 TRIUMPH, 3 1/2 h.p., clutch and Philipson pulley	£32	0
1916 NORTON, 3 1/2 h.p., 3-speed, done 100 miles	£65	0

Etc., Etc.

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'Phone: 943 Mayfair.

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MAGNETO Repairs of every description. We are the first original all-British experts from the Bosch Co., where we have had some years' experience. We guarantee every repair, and can return same in one day. All spare parts, also new and second-hand magnetos in stock.—The Magneto Repairing Co., 158, Seymour St., Euston, London. 'Phone: Museum 1158. [7077]

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TANKS Repaired; tanks re-enamelled, 10/6.—Bright and Hayles, 73, Church St., Camberwell. [6706]

TANKS.—Tanks any shape to order, repaired, or enamelled; all-metal sidecar bodies; general sheet metal work; lists free.—Attwoods, 86, Rosebery Av., E.C. Tel.: Central 12445. [5352]

TYRES.

SEE Bancroftian Advertisement under Miscellaneous. [0845]

ECONOMIC for cheap lines, 7 days' approval, cash refunded if not approved.

ECONOMIC.—Kempshall clearance non-skids, 26x2 1/4 27/6, 26x2 3/8 35/-, 26x2 1/2 38/-, 26x2 1/2 x 2 1/4 40/-, 650x65 50/-.

ECONOMIC.—Special oversize covers for Douglas rims, Kempshall heavy anti-skids 22/6, listed 32/6.

ECONOMIC.—Indian, Harley, and Saxon 28x3 covers, Kempshall heavy anti-skids 25/-, Good-year blue streaks 56/11, Wood-Milne heavy grooved 27/6, Clincher heavy de luxe 35/-, Kempshall oversize 28x3 1/2 steel-studs 57/6.

ECONOMIC.—Clincher extra heavy 700x80 3-ribbed Dreadnoughts 35/-, 26x2 de luxe non-skids 14/-.

ECONOMIC.—Continental 26x2 1/4 wired covers, oversize for 26x2, 10/6, pair 17/6.

ECONOMIC.—Special clearance of 26x2 1/2 Wood-Milne covers, rubber studded and grip ribbed, 15/-.

ECONOMIC.—Large number of one patch 26x2 1/4 butted tubes 4/9, Clincher endless 26x2 1/4 4/9, 26x2 4/6, 24x2 3/-.

ECONOMIC Tyre Co., 137, Lewisham High Rd., New Cross. 'Phone: New Cross 1393. [7039]

BASTONE'S Presents Free a 3/- repair outfit to purchasers of Henley, Michelin clearance covers as below to the value of 14/- and over.

BASTONE'S.—F.N. covers, Michelin heavy trident, wired edge, 26x2 1/2 19/-, 26x2 1/4 18/-.

BASTONE'S.—Michelin covers, ordinary 26x2 B.E. 9/6, wired edge 26x2 9/6, 26x2 1/4 9/6, 26x2 1/2 11/-.

BASTONE'S.—Michelin heavy trident, B.E., 26x2 19/-, 26x2 1/4 21/-, 26x2 1/2 23/-.

BASTONE'S.—Michelin heavy trident, 28x2 1/2, B.E., fit 28x3 rims, 20/-; Kempshall heavy B.E. covers, 26x2 1/4, 19/6.

BASTONE'S.—Henley rubber-studded covers, 26x2 14/-, 26x2 1/4 16/-, 26x2 1/2 18/-.

BASTONE'S.—Guaranteed red 26x2 4/6, 26x2 1/4 4/9, 26x2 1/2 6/6, 26x3 7/6, 26x2 butted 5/6.

BASTONE'S, 228, Pentonville Rd., King's Cross, London, N. Tel.: 2481 North. [6686]

7/6 Allowance Guaranteed for old tyre towards nearly all new motor cycle covers.—Particulars to Taylors', Tyre Stockists, Store St., London, W.C. [0626]

26 x 2 1/4 New Continental Cover, 12/6; ditto, heavier, 18/6; 26x2 1/2 ditto, 15/-; ditto, heavier, 20/-; approval against remittance.—Palmer's Garage, Tooting. [6890]

PATENT AGENTS.

CONSULT Patent Agency, 253, Gray's Inn Rd., London.—Free advice. Inclusive charges. [9220]

INVENTORS' Advice and Handbook Free.—King's Patent Agency, Ltd., 16, Queen Victoria St., London. [5818]

INSURANCE.

FOR Insurance of all kinds (specially motor), apply, Ernest J. Bass, Insurance Broker, Bishops Stortford. [0693]

GENERAL Insurance Co. issue Lloyd's Motor Policies by monthly payments. Lowest premiums for motor cycles. Before insuring elsewhere write for prospectus.—Head Office: 199, Piccadilly, London, W. [7734]

TUITION.

DRIVING and Mechanism.—Full Course, 25/-.—Rider Troward, 78, High St., Hampstead. [6979]

SITUATIONS VACANT.

WANTED, mechanic, used to motoa cycle repairs; prospects good; high wages offered.—Lamb's, 151, High St., Walthamstow.—'Phone: Walthamstow 169 [6886]

WANTED, salesman, motor cycle demonstrator; only military exempt men need apply; good prospects; state age, salary, and full particulars past experience.—Lamb's, 151, High St., Walthamstow. 'Phone: Walthamstow 169. [6885]

SALESMAN required for motor cycle business, must have five years' experience, and conversant with all makes and accessories, to take sole charge on salary and commission; state previous experience.—Box L2,886, c/o The Motor Cycle. [7103]

SITUATIONS WANTED.

MOTOR Cyclist (36), discharged army reserve, desires situation with firm dealing in motor cycles.—Box L2,880, c/o *The Motor Cycle*. [6873]

A WANTED.

ANY Number modern second-hand motor cycles, sound condition, Douglas, B.S.A., Triumph, A.J.S., Enfield, Sunbeam preferred: spot cash on examination and proof of ownership.—Maudes' Motor Mart, 100, Gt. Portland St., London, W. Tel.: 552 Mayfair. [5186]

WANTED, flywheel for Auto-Wheel.—Z., 1, Victoria St., S.W. [6824]

WANTED, A.B.C., 1915 or 1916.—Box 616, c/o *The Motor Cycle*. [X4145]

3-SPEED Gear, Armstrong or Sturmey preferred.—64, Staines Rd., Hounslow. [5622]

WANTED, main axle for 1913 Douglas.—Darkins, Sussex St., Cambridge. [6953]

WANTED, 1914 Triumph piston.—Address, 26, Bourne St., Eastbourne. (D) [X4098]

WANTED, recent motor cycle, 4 or 6h.p.—Henry, 43, Grimwood Rd., Twickenham. [6952]

MOTOR Cycle, T.A.C. preferred: also Bosch magneto.—101, Tooting Bec Rd., S.W. [6832]

CALCOTT, Singer, Calthorpe Light Cars; good price given.—Booths Motories, Halifax. [6988]

100 Motor Cycles Wanted: spot cash paid.—Bring send, Palmer's Garage, Tooting. [6887]

WANTED, Mabon or other driving axle clutch for Premler.—Girrin, Keady, Armagh. [X4077]

LIGHTWEIGHT wanted: £15 to £20; letters first.—Simmons, 11, Grant Rd., Croydon. [6929]

WANTED, modern combination, cheap for spot cash.—70, High St., Lye, Stourbridge. [X4140]

WANTED, motor cycle, single or twin; cheap.—Write, 4, Garden Lane, Streatham. [6795]

SPINDLE, back and front wheel Douglas de luxe, 4h.p., 1915.—Newton, Helmsley, Yorks. [X4149]

21/2 h.p. Enfield, 2-stroke, any condition.—156, Stockport Rd., Gee Cross, Hyde, Cheshire. [X4102]

P and M. Combination or Solo, kick starter; cash, bargain.—41, Ashford Rd., Cricklewood. [7002]

WANTED, 1914 Triumph front stand and tool kit.—Frank Thomson, Newark, Sanquhar. [7007]

WANTED, Douglas adjustable 8in. pulley, 1915 or 1916.—Box L2,879, c/o *The Motor Cycle*. [6874]

WANTED, exchanges.—Send particulars to W. and H. Motor Co., Ltd., 287, Deansgate, Manchester. [6594]

MORGANS and light cars wanted: cash waiting.—Halifax Motor Exchange, Horton St., Halifax. [6683]

WANTED, motor cycle frame, tank, and wheels, modern.—Reid, Whinear, Torphins, Aberdeenshire. [X4154]

TRIOUMPH Piston and Cylinder wanted, 1911 or 1912.—160, Appin Crescent, Dumfermline. [X4211]

LATE Motor Cycle or combination, new condition: must be cheap.—Motorist, Mountfield, Prestwich. [X4150]

WANTED, good solo mount or first-class combination for spot cash.—3, Stockwell Park Walk, Brixton. [7005]

WANTED, good 2-speed lightweight, for cash, or exchange 2-speed Triumph.—A. Coffin, Holwell, Sherborne. [X4085]

WANTED, front cylinder and piston, complete, for 1912 5-6h.p. twin J.A.P.—Hillery, Buckhurst Hill, Essex. [6937]

MATCHLESS Heavy Section Girder Forks; state price.—Giffkins, 61, Altenbury Gardens, Lavender Hill, London. [6906]

WANTED, sidecar, torpedo, for 1915 spring frame Indian.—Lt. Bird, Darell Hospital, 58, Queen Anne's St., W. [6857]

WANTED, 3 1/2 h.p. combination, 1913 or 1914.—Particulars and lowest cash price, Meredith, Davenham, Northwich. [X4117]

MOTORISTS requiring exchanges to send for our bargain list: liberal allowances.—Motor Exchange, Horton St., Halifax. [6680]

ENFIELD or Similar Combination, also Douglas, must be cheap for cash, waiting.—Box L2,885, c/o *The Motor Cycle*. [7105]

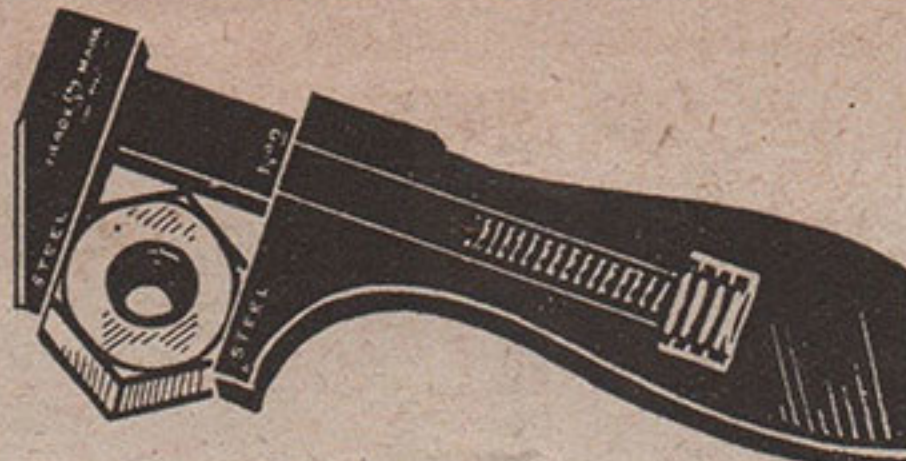
SECOND-HAND Motor Cycles, purchased for cash.—Send particulars and lowest prices.—Service Co., 292, High Holborn, W.C. [0679]

ACCUMULATOR, Lucas or mechanical horn, top tube pannier bag, few gallons Castrol, or Price's.—204, Brownhill, Catford. [6921]

B.S.A., 1914, 4 1/2 h.p., 3-speed, all chain drive, lamps, horn, speedometer, accessories; £38.—Agassiz, Military Hospital, Lewisham. [6955]

MODERN 2-cyl. Motor Cycle and Sidecar, in nearly new condition, about 5h.p.—Full particulars and price, Girling, Maldon, Essex. [7076]

WANTED, good motor cycle or combination; state particulars and lowest price.—Newnham, 223, Hammersmith Rd., W. 'Phone: 80. [6984]



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Four sizes—3in., 4in., 6in., and 9in.

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CASH, EXCHANGE, or CREDIT.

Levis, Model E. 2-speed	£47 10
Levis, T.T. and Popular	£32 0
Enfield, 3 h.p. twin, 2-sp., 1913	£33 0
Triumph, 1913, Clutch Model	£28 0
Triumph, 1911, good condition	£22 0
Levis, 1916, done 400 miles..	£24 0
Stag Villiers, 1915, 2-stroke..	£18 0
Coachbuilt Sidecars in stock..	£9 9

Martin Mitchell, Ltd., STAFFORD.

WANTED.

A1 Prices given for good sound second-hand motor cycles, motor cycles and sidecar, and light cars.—Wauchope's, 9, Shoe Lane, London. [6947]

WANTED, first-class lamp and generator, perfect; state lowest price; or exchange plumber's brass fittings.—Box 621, c/o *The Motor Cycle*. [X4209]

WANTED, 1910 or later F.N. cylinders, pistons, timing cover, flywheel clutch complete, etc.—Voss, 103, Churchfield Rd., Acton. (D) [6936]

WANTED, Williamson Cy-cla, for cash, or will give cash and 1916 twin sidecar combination.—Holdsworth, 22, Belvoir Gardens, Halifax. [7049]

WANTED, kick starter, for Sturmey-Archer hub gear, D-shaped forks.—Hudleston, 10, Clarendon Rd. West, Chorlton-cum-Hardy, Manchester. [X4029]

MOTOR Sidecar, Harley-Davidson combination, wanted at once, must be recent model, perfect condition.—Lowest price to Panora, Ltd., 60, Doughty St., W.C. [6839]

SECOND-HAND Engine, 3 1/2 h.p., single, less magneto and carburetter, not earlier 1913; Premier preferred.—Barker, 239, Leytonstone Rd., Stratford, E. [6855]

MODERN 3 1/2 h.p. Semi T.T. motor cycle, variable gear preferred; must be cheap for cash, and in good order; London district.—Box L2,881, c/o *The Motor Cycle*. [6875]

WANTED, 4-cyl. F.N. motor cycle, 5h.p., shaft drive, with 2-speed gear, and malleable disc clutch, 1913 or 1914 model, without sidecar.—Box L2,865, c/o *The Motor Cycle*. [6815]

WANTED, good second-hand lamps, horns, speedometers, and other modern accessories.—Particulars and lowest price for cash, Service Co., 292, High Holborn, W.C. [0743]

SMART Up-to-date Motor Cycle Combinations; good prices paid for right kind; call with them, if possible, proof of ownership essential.—Lamb's, 151, High St., Walthamstow, and 50, High Rd., Wood Green. [6884]

WANTED, 6h.p. Peugeot, valves, sprocket, sidecar, hood, exchange touring bars, aluminium rear lamp, lightweight Brooks, horn, 1in. belting.—Johnson, Inglenook, Hutland Rd., Ipswich. [6996]

RIDER TROWARD and Co., 78, High St., Hampstead, can accept several more machines for sale on commission, 5%; no sale, no charge; advertised, garaged, insured, cleaned, collected free. [6980]

DOUGLAS, 2 1/2 h.p., 1914, 1915, 1916 machines wanted; good cash prices offered. We are legitimate buyers and really want machines.—Douglas Specialists, Robinson's Garage, Green St., Cambridge. [7061]

WE will purchase your motor cycle for cash, or take in exchange for a new model; best possible market prices offered; only modern well-known machines accepted. Give full particulars and lowest price.—Elce and Co., 15-16, Bishopsgate Av., Camomile St., E.C. 'Phone: Avenue 5548. [0597]

SEND Your Motor Cycle to Palmer's Garage, Tooting, Wimbledon Station, L. & S.W. Rly. Cash offer will be telegraphed immediately on receipt of machine. Machine can be included in fortnightly auction without charge if offer not accepted; reserve price may be fixed.—Sole address, Palmer's Garage and Motor Cycle Auction Rooms, 183, 185, 187, High St., Tooting. [6888]

EXCHANGE.

THE Halifax Motor Exchange quote the keenest exchanges.—68, Horton St., Halifax. [6681]

CLOSE Exchange cycle goods and cash for combination.—A, Jeavons, Lye, Stourbridge. [X4141]

PREMIER 3 1/2 h.p. Motor Cycle, for 2-stroke Villiers or Peco; no others.—Carter, Istock. [X4125]

EXCHANGE Your Machine for new model.—W. and H. Motor Co., Ltd., 287, Deansgate, Manchester. [6595]

N.U.T. 1914 3 1/2 h.p. Twin, 3 speeds, perfect, for T.T. machine, or sell.—Rae, Caledonian Rd., Saltcoats. [6927]

EXCHANGE 3 1/2 h.p. Triumph, good condition, with cash, for 6h.p. or 8h.p. combination.—Sowerbutts, Bacup. [X4208]

HARLEY-DAVIDSON, 7-9h.p., 1914, splendid condition; exchange 1914 Indian.—Bath House, Ardrossan. [6924]

6 h.p. Zenith, Gradua, two coachbuilt sidecar, for 8h.p. and 2-seater sidecar.—P. O. Hartley, Swinton, Rotherham. [X4118]

EXCHANGE 4-cyl. Bosch Magneto and large motor car head light for good sidecar.—170, Cape Hill, Smethwick. [X4127]

EXCHANGE 3 1/2 h.p. Triumph, 2-speed gear, for higher power with cash adjustment.—Box 612, c/o *The Motor Cycle*. [X4103]

EXCHANGE new roll top desk, good typewriter, and gent's cycle, for magneto motor cycle.—170, Cape Hill, Smethwick. [X4126]

EXCHANGE 2-seater Pilot light car, perfect condition, for good motor bike, or sell £45.—C.S., 497, Old Ford Rd., Bow. [6800]

EXCHANGE.—Any make of motor cycle taken in part exchange for light cars.—Service Co., Featherstone Buildings, W.C. [0664]

SALE or Exchange 18ft. cabin motor launch for good motor cycle and sidecar.—J. Cooper, 31, Woods Terrace, Gainsborough. [6997]

EXCHANGE.

19 16½ Enfield Combination, ridden twice; cheaper machine and cash; sell 79 gns.—245, Hammer-smith Rd., London, W. [6910]

EXCHANGE 1914 Rex combination for single powerful, geared solo mount.—Dell, The Infirmary Colindale Av., Hendon, N.W. [6804]

EXCHANGE Good Lathe and first-class pillar drilling machine for magneto motor cycle and sidecar.—170, Cape Hill, Smethwick. [X4128]

EXCHANGE 1914 Enfield 2-seater car for lightweight motor cycle and cash, sell £95.—Newham, 223 Hammersmith Rd., W. Phone: 80. [6985]

3½ h.p. Humber, 2-speed, also cabinet gramophone cost £18, and cash, for higher power combination.—Mosedale, 30, Canterbury Rd., Kilburn. [6771]

12 h.p. Sizaire, fine sporting streamline 2-seater; exchange really first-class solo, or combination, or sell £70.—Stanhope, 130, Beulah Hill, Upper Norwood [087]

EXCHANGE 4-cyl. F.N., 5-6h.p., enclosed mag., 1913 1914 model, 2-speed, hand clutch, nice order, for smaller power; sell £30.—Mr. Brown, Rangemore, Burton-on-Trent. [X4147]

EXCHANGE 1914 7-9h.p. Indian, 2-speed, spring frame, in new condition, for lower power, or sell; Norton or Triumph preferred.—Smallwood, 7, Wellington St., Northwich. [X4139]

PREMIER 1914 8-10h.p. Light Car, smart 2-seater, hood, screen, 5 lamps, fine condition; £65; good modern combination and little cash.—Premier, 77, Tower Ramparts, Ipswich. [X3922]

19 15 Triumph Tank with drip feed, as new, or exchange or sell for 1914 Triumph free engine wheel; cash either way.—Frank Thomson, Newark, Sanquhar, Dumfriesshire. [7008]

FIFTY Cars for Exchange. Call and have a look at them, no obligation. Motor cycles, combinations, cars in exchange. Seen 9 to 6.—Liquidator, 6c, Lansdowne Hill West Norwood. [7020]

EXCHANGE Handsome nearly new 90 gn. combined player-piano, by Murdochs, for good modern motor cycle or combination; cash adjustment either way; sell £65.—Suffolk Hall, West Hill, Wandsworth. [6655]

SAXON, late 1915, 2-seater, new Stepney and tyre, speedometer, lamps, horn, nice order; £112; motor cycle exchanges, deferred terms.—Lamb's, 151, High St., Walthamstow. Phone: Walthamstow 169. [6883]

SMART Turnout, pony (5 years old), governess car, and harness, warranted sound and quiet with all traffic, been regularly driven by a lady, for a motor cycle and sidecar complete.—Cotton, Waltham Abbey, Essex. [7033]

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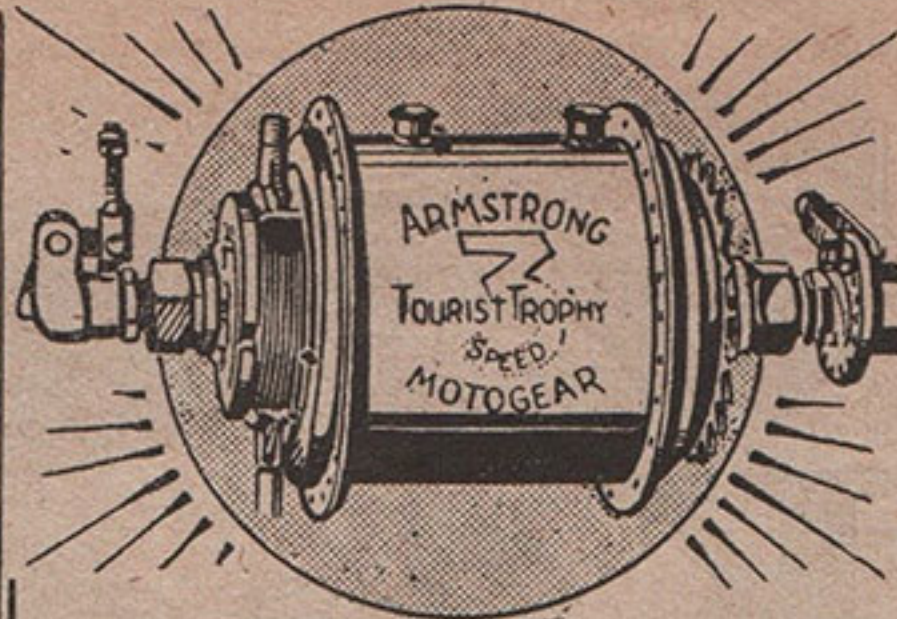
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A

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MISCELLANEOUS.

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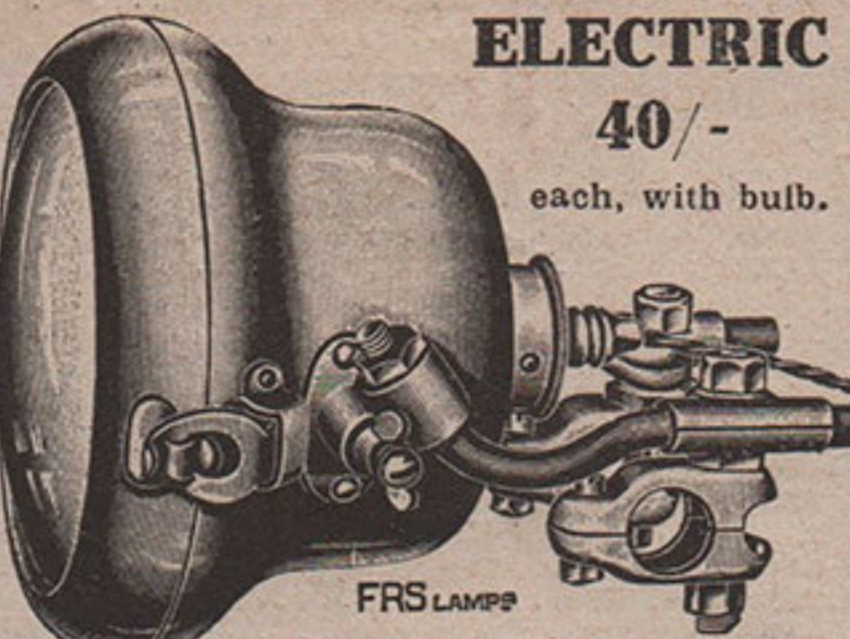
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ALLDAYS Matchless, 3 1/2 h.p., 1913 model, 2-speed Roc, also wicker sidecar, all in excellent condition, price complete £27; 4h.p. Parley oil engine, new cylinder, piston, rings, etc., just fitted, with dynamo, switchboard, etc., suitable for 25 volt lighting or charging, complete, £15.—Balcock, Gt. Missenden, Bucks. [7009]

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BUTTERWORTHS', Butterworths', Butterworths'.—Calthorpe-Jap 1916 4h.p. twin, coach combination, Enfield 2-speed gear, handle starting, accessories, and machine hardly soiled, only wants seeing, £45; Rover, late 1913 combination, coachbuilt, 3-speed gear, kick starter, all brand new tyres, and in splendid mechanical condition, and fully guaranteed, enamel and plating splendid, £35; Matchless-Jap 6h.p. twin, 1913, kick starter, hub clutch, brand new, 650x65 Dunlop, machine been thoroughly overhauled, and guaranteed, snip, £25; sidecar (Montgomery) to suit, £5; call evenings or week-ends.—Butterworth, Garage, 64, Mill Lane, Brixton Hill. [X4080]

2-SPEED P. and M. Countershaft Gear, chain drive, £5; 5-h.p. twin Rex engine, a.i.v., £3; N.S.U. engine, m.o.i.v., 50/—; 5-h.p. twin Antoine engine, a.i.v., £3; Druid forks, 35/—; pair Indian pattern spring forks, 35/—; N.S.U. spring forks, 30/—; Saxon, 35/—; N.S.U. frame and tank, 30/—; dropped frame, complete with tank, wheels, etc. (less power unit), £3/10; Vindec frame, tank, and spring forks, £3; Edmunds dropped frame, complete with tank, 30/—; pair wheels, 26x2 1/2, 25/—; saddles, 5/—; bars, 3/6; 3 1/2 h.p. Minerva motor cycle, mag., £5; wicker sidecar bodies 2/6, with doors 5/—; exchanges considered for motor accessories.—City Motor Co., 125, London Rd., Manchester. [X9576]

STOCK-TAKING Clearance.—Armstrong 3-speed hub, Mark VI., all controls, minus belt rim, £5/15; N.S.U. gear, adjustable pulley, fit Rover, £5/5; Grado Multi pulley, ball thrust model, fit Triumph, £2/10; N.S.U. gear, fixed pulley, fit Bradbury, £4/15; Philipson pulley, fit Premier, £2/10; P. and M. 2-speed countershaft gear, with controls, chain and belt drive, £5; Bradbury frame, with crank case, 35/—; Bosch magneto, DAV, 45°, anti, 55/—; Jones speedometer, with trip and maximum hand, 35/—; Stewart speedometer, suitable for Indian, to drive from rear stand, 25/—; Stewart trip magnetic type speedometer, 37/6; N.S.U. gear, adjustable pulley, fit Rudge, £5/5; 8ft. x 1in. Whittle belt, 12/—; Lycetts reliable belts (new), 8ft. 6in. x 1in., 12/6.—Eagles and Co., High St., Acton, W. [X4158]

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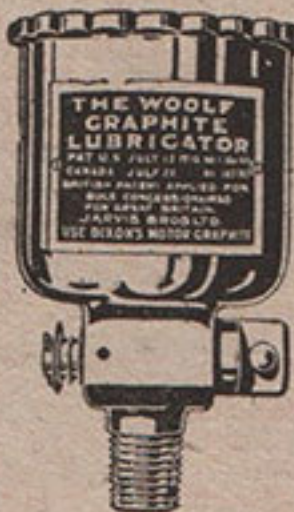
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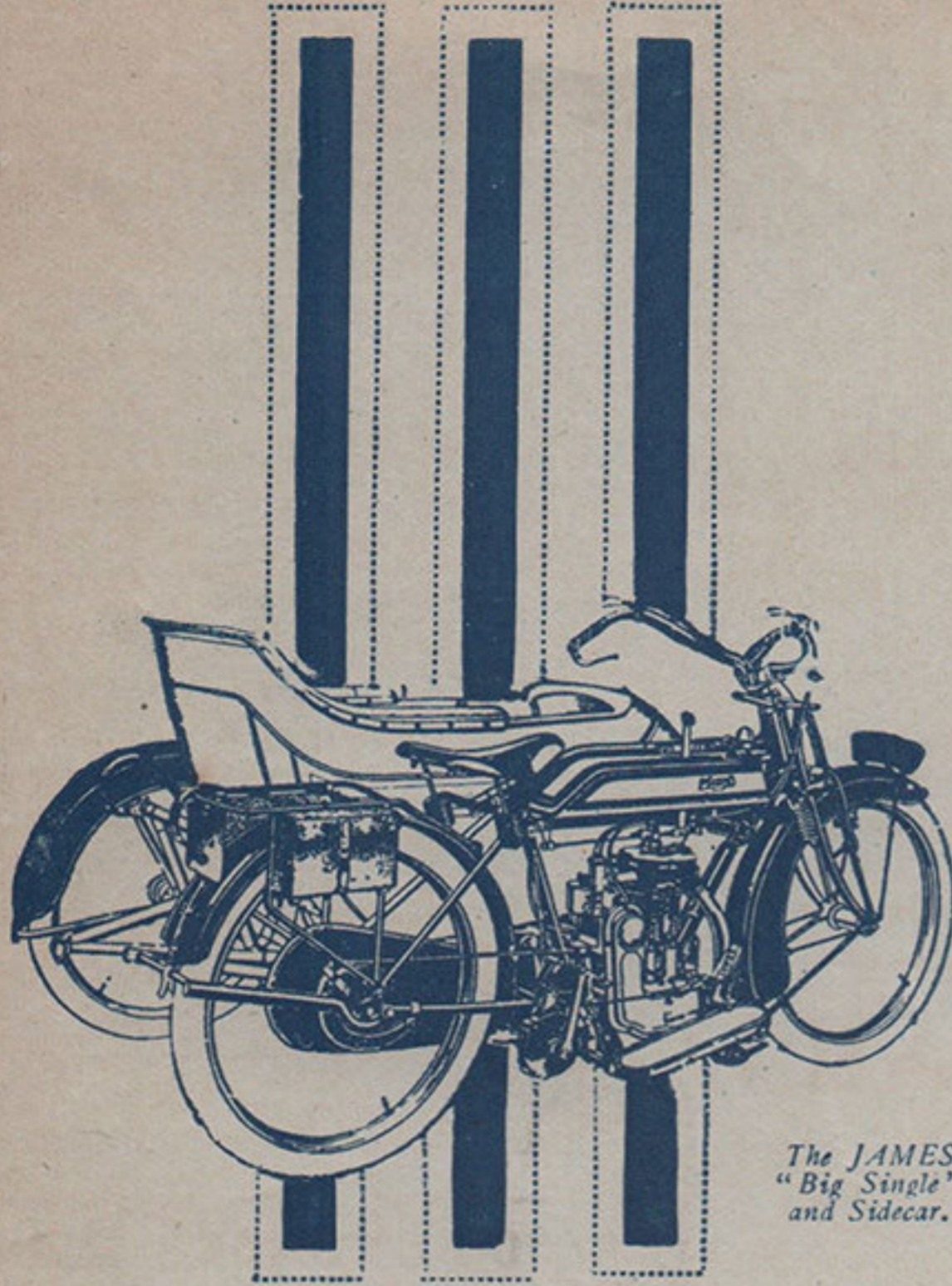
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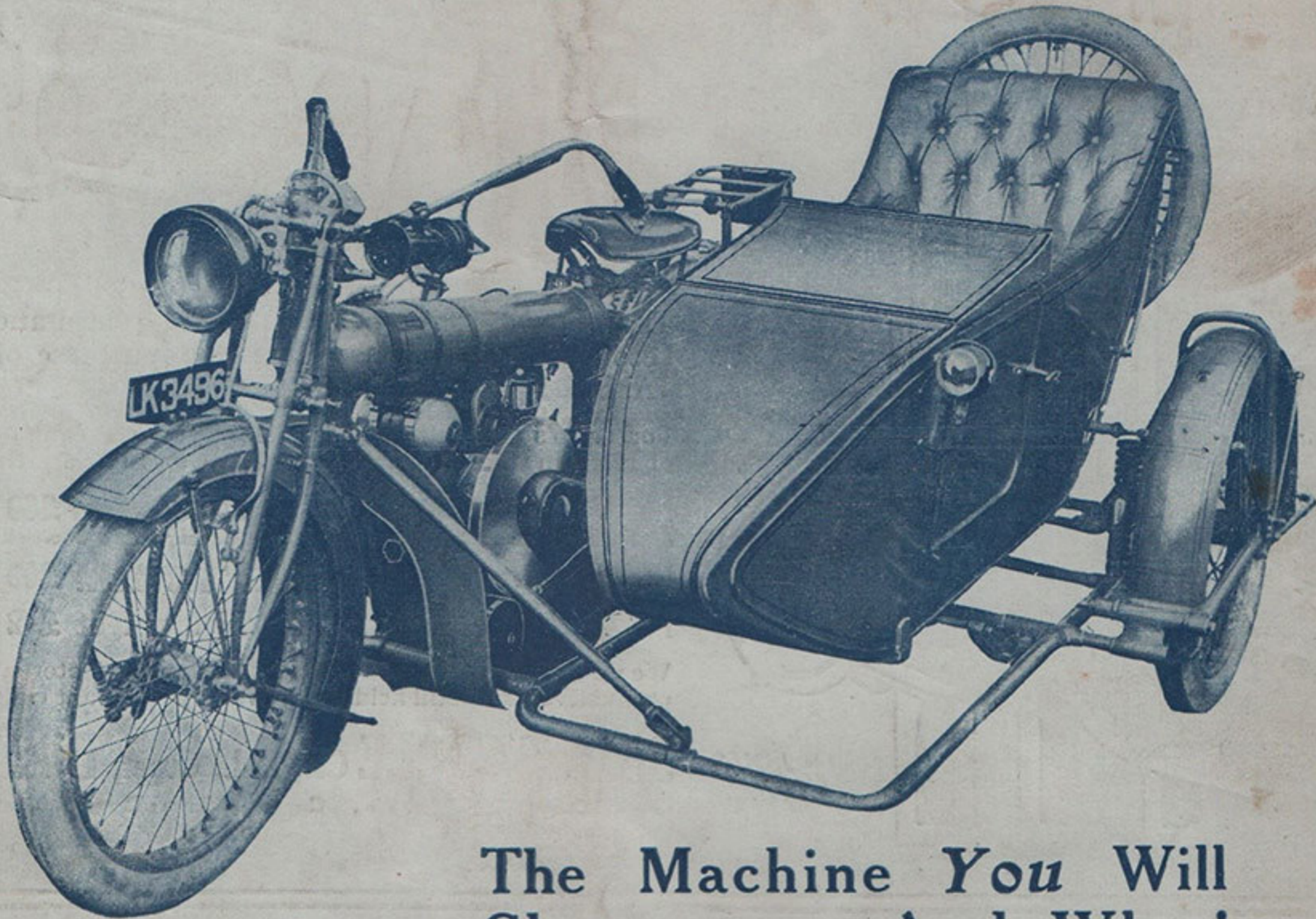
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