Motor Com

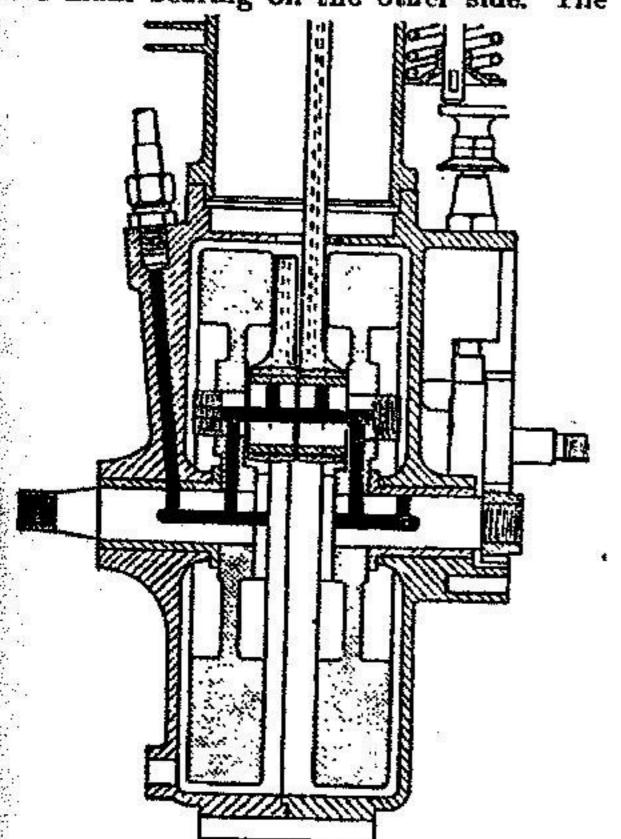
THE A.J.S. LUBRICATION SYSTEM.

Direct Oil Supply to the Main Bearings.

CO., LTD., do not rely entirely upon the splash system for the adequate lubrication of all the moving parts of their engine. The oil is delivered to the crank case through a

semi-automatic lubricator. Ou , the plunger being depressed the spring forces the oil into the crank case union, but, as in previous models, it does not pass through a sight feed, as Messrs. A. J. Stevens and Co. consider this to be unnecessary, as an oil orifice of a certain diameter is supplied, and they consider that this orifice allows sufficient oil to be delivered to the engine, irrespective of the thickness of the lubricant. After leaving the union, which is screwed into a part of the crank case casting, the oil enters a small chamber; part of it leaks through into the crank case, but the majority passes down the special oilway to the main bearing on the pulley side. The bush is drilled and the hole communicates with a deep groove surrounding the journal, which is always full of oil. A hole in the journal is connected to a passage through the flywheel, which in turn leads to another passage inside the crank pin, whence the oil exudes through three holes, and gives the hig end-one of the most important

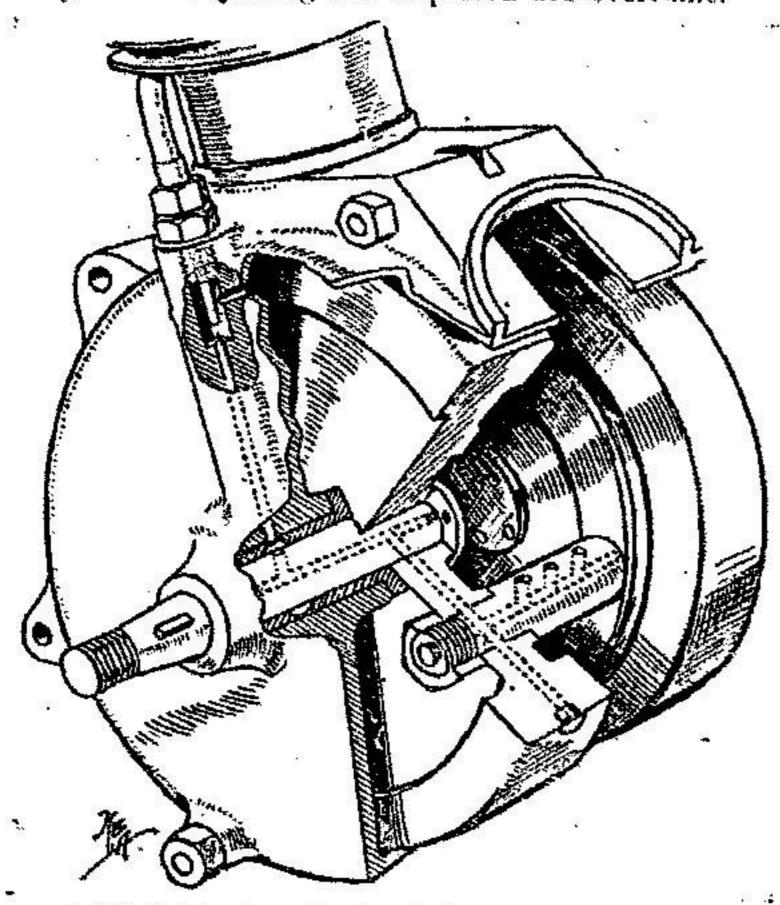
To revert again to the journal of the main bearing, it will be clearly seen that the two holes register every complete revolution. On leaving the crank pin the oil descends through the flywheel to the main bearing on the other side. The



Sectional drawing of the A.J.S. crank case. The oilways to main shaft and crank pin are shown black.

owner is recommended to depress the plunger every tive miles, and all the time the oil pump is emptying itself the lubricant is flowing into the crank case,

This is certainly a very sound scheme, and a great improvement upon the simple splash system. Of course, the oil naturally leaks through into the crank case in sufficient quantities to lubricate the cylinders and timing gear by splash. By this means all trouble and worry of adjusting the drip feed are overcome.



A.J.S. lubrication, showing drilled oilways leading to main bearings.

LATEST BROWN & BARLOW CARBURETIERS.

Improved Flooding Device.

LTHOUGH the B. and B. carburetter itself is in principle unchanged, yet there is a minor improvement which will be of interest to motor cyclicits. This consists of a new float chamber and flooding button having several peculiarities. The B. and B. carburetters so far produced have had the bearing and spring for the flooding button outside the float chamber cover, a thin stem projecting through the bearing to come in contact with the float, The latest button has its bearing and spring wholly within the float chamber itself, and the end of the button only projects through the lid, making the appearance of the carburetter very much neater. Through the centre of the flooding button a hole is drilled, forming the sole air vent for the float chamber, and it is here that the question of careful design comes in. It will be remembered that with the carburetters of some years ago, if the flooding button were held down for any length of time, petrol would flow through the vent in the float chamber as well as out of the main jet. The result would be a considerable amount of waste petrol as well as a certain risk of fire if the engine should fire back into the carburetter when starting. The hole through the flooding button gets over this difficulty very easily and simply, because

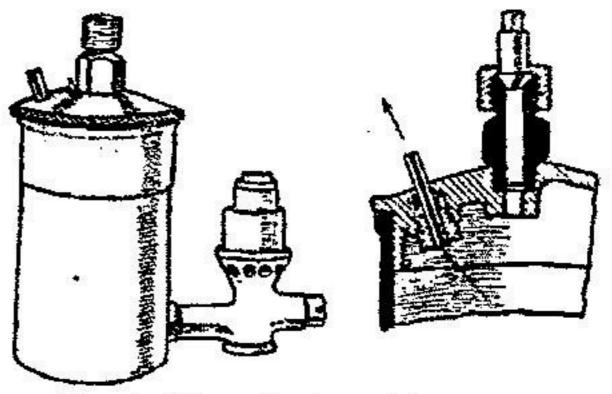
when the thunk is placed on the latter the air within the floor chamber cannot escape. Consequently, when the latter is pressed down patrol can only arise in the float chamber until the air above the petrol is at a certain pressure, and it cannot rise to such an extent as to least from the float chamber itserf. On the other hand, as the petrol which is in the float chamber is as pressure due to the compressed air in the float chamber, it flows in a steady stream through the jet, and an excess of petrol is chambed where it is required for starting perposes.

To demonstrate the foregoing, a carburetter was shown to us fixed on an ingenious test stand used by Messrs. Brown and
Barlow. The choke tubo and throttle
casing having been taken away the jet
chamber was exposed, and by sharply
depressing the flooding button a stream of
petrol was jerked out of the jet if the
thumb covered the air vent. If, on the
other hand, the flooding button was depressed by the finger nail only, thus uncovering the air vent, petrol filled the
float chamber, and first bubbled out of
the jet, finally proceeding from both jet
and air vent in a steady stream.

The Petrol Feed.

The B. and B. carburetters are of that type wherein petrol is fed to the top of the float chamber instead of to the underneath part. This has been done for some little time, but it is interesting to recall the reasons for the change. In the first place the little weighted levers acting on the needle valve through a collar and resting on the float could not he made to stay steady, but rattled about, jerking the needle off and on its seating during the time the machine was on the road. Thus considerable wear took place on the needle valve face, while the cut-off of the petrol was anything but steady. With the present instrument the needle has a small collar, and its stem is placed through a hole in the float, the collar resting on the top of the float, while the needle end of the valve is, of course, uppermost, and rests in a scating immediately below the petrol pipe. Thus, there is no lever mechanism, and the cut-off is much smoother, as can be demonstrated by experiment.

The jet supply pipe now is placed nearer to the bottom of the float

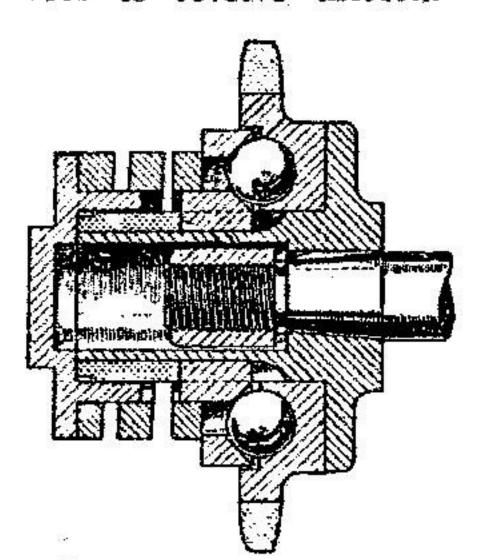


Top feed float chamber of latest pattern Brown and Barlow single-jet carburetter, showing hollow flooding button.

chamber, yet not sufficiently near to allow accumulated dirt to flow into the jet. Last year's models had the supply pipe somewhat higher up on the side of the float chamber, with the result that if a machine were swung over to any great extent at a corner the supply of petrol was interfered with.

Transmission Shock Absorbers.-

mounted on a boss keyed to the engine-shaft, and is free to revolve thereon. Next to the sprocket is



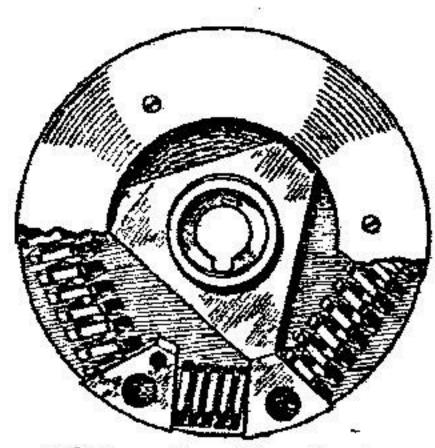
Spring drive fitted to engineshaft of Rex machines.

mounted a sliding piece, from which the drive is conveyed to the sprocketby means of balls which fit half in the sprocket and half in the sliding This piece, piece. which is, of course, the boss, keyed to though free to move outwards, is held in position by a strong coil spring. When a shock takes place the balls ride outwards in one direction or the other, and in so doing they force the

sliding piece outwards against the pressure of the spring.

B.S.A.

The device used on the chain-driven model of the B.S.A. is attached to the engine-shaft. The sprocket



B.S.A. spring drive fitted to engine - shaft of chain-driven models.

contains six strong springs, through three of which any strain between the engine and the chains is passed. The springs are kept in position under all tensions by a retaining cap. It will be noticed that the springs are so arranged that the forward thrust of the engine is taken up by the three longer springs, the three shorter ones absorbing the lesser

shocks which fall in the opposite direction.

Friction Shock Absorbers.

Coming now to the friction type of transmission shock absorbers, we find that these vary little in points of construction. As already stated, their object is to allow a certain amount of slip when any considerable shock falls upon the chains.

The slight slip that occurs at low speeds or with a heavy load eases the engine very considerably, and, when the device is properly set, the machine will ascend hills with ease which would cause it to labour were the adjustment too keen. It is only when slip is excessive that any loss of power occurs, and the proper adjustment is not difficult to obtain.

A.J.S.

The shock absorber used on the 234 h.p. A.J.S. machines is placed on the engine-shaft and consists of a steel boss carrying two fibre plates. Between these the sprocket is free to revolve, and pressure is maintained between them by means of springs, the tension of which can be adjusted as necessary.

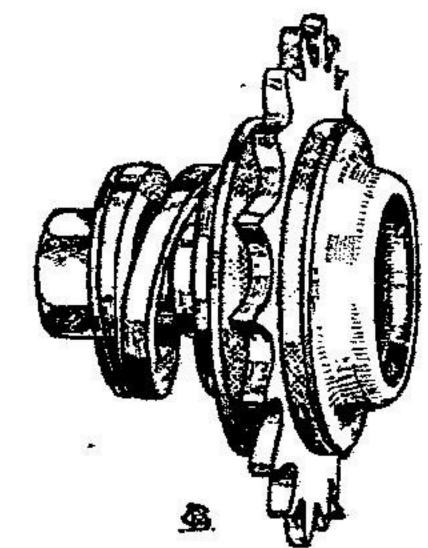
In the case of the twin-cylinder A.J.S. machines, which were sometimes ridden solo and sometimes with sidecar, it was found that the slipping device was not A22

sufficiently necessary to warrant the trouble of setting it to the load when even a sidecar was attached, and, since 1912, these excellent machines have been fitted

with solid transmission. The makers advise their riders to ease the clutch should any suggestion of snag be felt at low speeds.

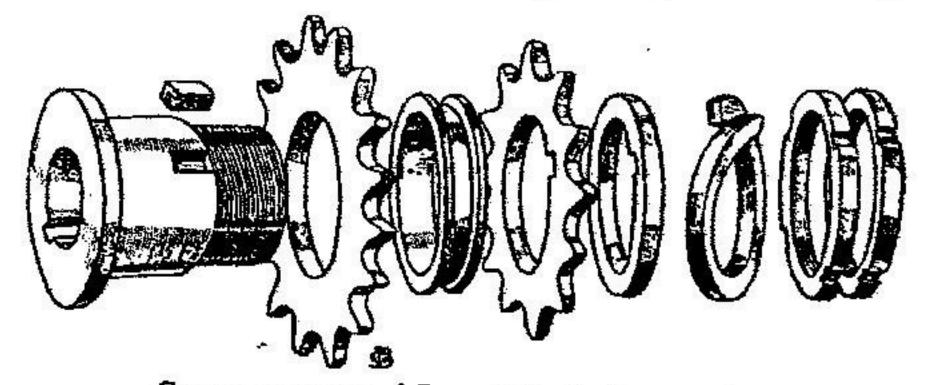
Phelon and Moore.

The Phelon and Moore device is very similar. It will be recalled that two sprockets are mounted on the engine-shaft. The low gear sprocket is keyed to the boss mounted on the engine-shaft, but the high gear sprocket is free to



A.J.S. slipping sprocket.

revolve thereon. The drive is maintained through a large spring washer placed between the high gear sprocket and the two lock nuts on the end of the boss, the high gear sprocket thus being firmly held between the washer and the low gear sprocket. By tightening up the lock nuts any amount of pressure can be brought to bear on the sides of this sprocket, which is thus prevented from revolving freely in the boss,



Component parts of P. and M. slipping sprocket.

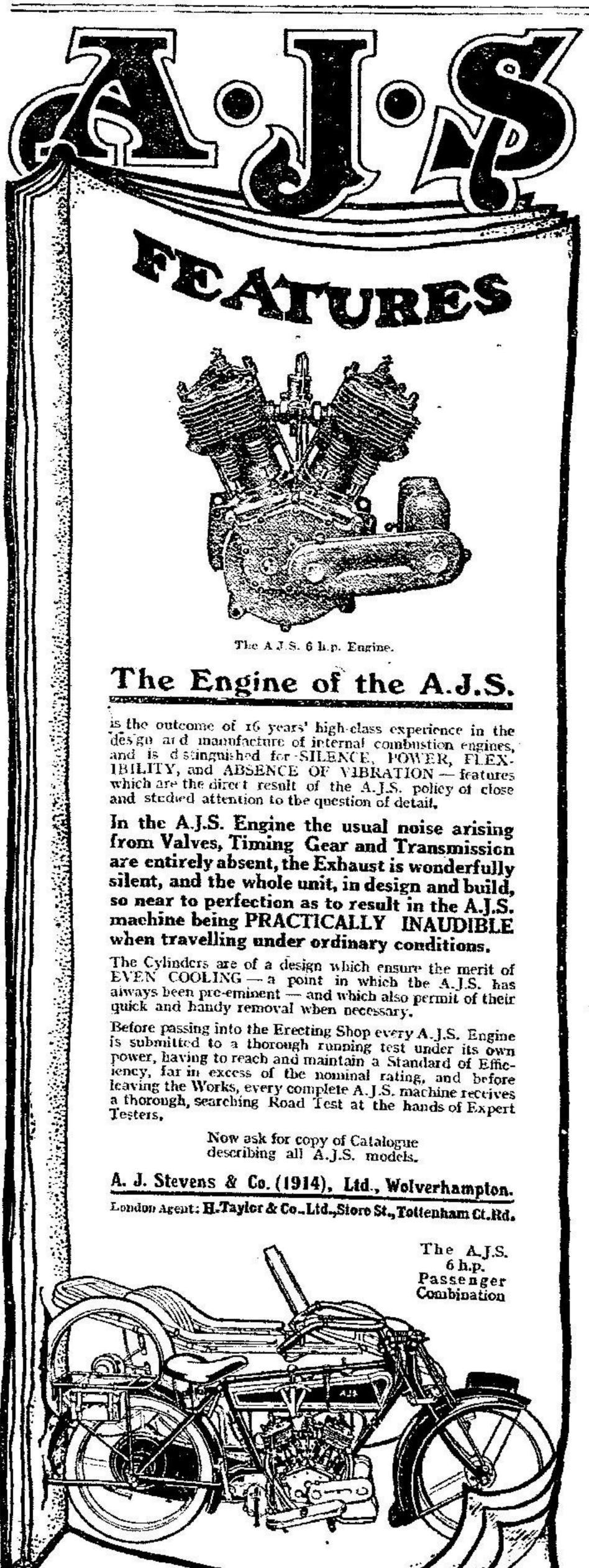
while, by loosening the lock nuts, the tension of the spring washer is released till finally the sprocket would revolve quite freely.

In the case of the P. and M. machines a solid drive is permitted on low gear, for with the engine revolving at speed no suggestion of snag takes place.

Care and Adjustment of Shock Absorbers.

So far as practical use is concerned, the main points of difference between the friction types of shock absorbers and the other types here described lie in the fact that, while the former may require occasional adjustment and periodical lubrication, the latter are permanently fixed and need no attention whatever from the private owner. Cush drives, for instance, need not be interfered with, while devices on the lines of the Rex and the Sunbeam obtain sufficient lubricant from the engine bearing, and unless the drive is found to be harsh they are best left alone.

Friction shock absorbers, on the lines of the A.J.S. and P. and M., on the other hand, require a little attention if the transmission is to be kept in perfect order. They should be oiled periodically, and to obtain proper adjustment the machine should be jacked up on the stand and the lock nuts slackened off till, by gripping the tyre and jerking the engine against compression, slip begins to occur. Then give the lock nuts another quarter turn, and it will probably



MOTOR CYCLES.

5/6 h.p. Hazlewood Twin Combination -

£86 0 0

6 h.p. Zenith Model E

£72 15 6

Calthorpe, two-stroke single speed - - -

£27 14 6

Coventry Eagle, 21 h.p., two-stroke

E

 ${f R}$

£37 15 0

"Selfridge" two-speed

£39 1 0

"Selfridge" single-speed

£31 7 0

Call or write for particulars of the - - Selfridge System of Deferred Payments.

TELEPHONE: "GERRARD ONE."

There's
no need
to
proceed
with
caution
if you
purchase
your
Motor
Cycles
and
Accessories
at

CLOTHING.

Waterproof, Motor Cycling Suit, consisting of double - breasted Jacket and Overalls with apronfront. In strong Twills and Cashmere Cloths of double texture and rubbered.

45/- and 30/-

Tan Leather Under Jackets, 30" long. Wind and rain 45/-

Chamois Leather Vests, light and warm.

without 18/6 with 30/-

Tweed Motor Caps with 6/6

Tan Leather Caps, close fitting - - - 5/

Selfridge & Co., Ltd., Oxford St.

Indian is the most popular of the times at secret and open checks, and American makes at present. condition of machine at finish.

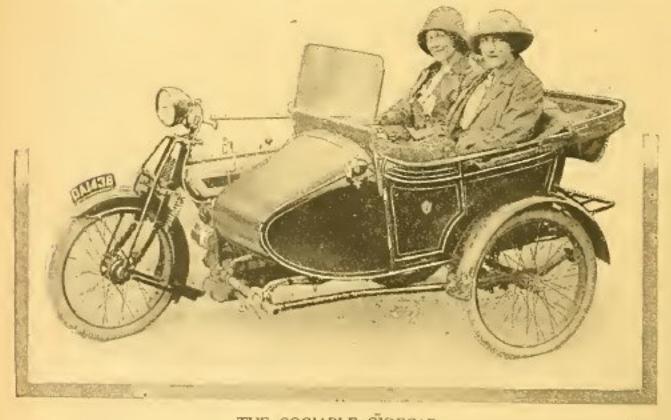


The only lady competitor in the Glasgow M.C.C. twelve hours trial, Miss Runciman, who drove an A.J.S. passenger outfit. .The event is described on page 43.

			Last	Average
Make,	Year.	H.P.		
0.000000	200000000		average.	8 weeks.
A.J.S	1914 27	3-speed	· £40	£43
	1913.6		. 152	£57
Ariel	1913 31	3-speed	. £35	£35
Auto-Wheel	1914 1		. £10	£10
Bat	1913 8	2-sp. sidecar .	. £55	£55
Bradbury	1914 6	3-sp. sidecar .	. £70	£67
B.S.A. ,	1914 4	3-sp. sidecar .	. £60	£54
	1914 4	3-speed	. £47	£48
Chater-Lea .	1914 8	3-sp. sidecar .	. £50	£66
Clyno	1914 6	3-sp. sidecar .	. £63	£67
** ****	1913 6	3-sp. sidecar .		£54
	1913 25			£32
Dougias	1914 21	2-sp, kick star	rt £43	£42
_ 0 ***	1913 27	2-speed		£36
Enfield	1914 (6	2-sp. sidecar .		405
11	1914 3	2-speed	- 512	£41
** ** ****	1913 6		· £52	452
Humber	1914 27	3-sp. T.T	. £30	£3t
25 1.3.4	1913 35	3-sp. sidecar .	. £40 -	£40
* 22 ***	1913 3}	3-speed	· £32	£34
Indian	1911 7	2-sp. sidecar .	· £03	£63
,,	1914 7	T.T	• £42	642
T-11 +-++	1913 7	2-sp. sidecar .	. 455	£53
James	1914 44			£52 £52
Matchless	1914 3	3-sp. sidecar .	. 200	£75
Matchless	1914 7	3-sp. sidecar .	. 213	£55
Motosacoche	1913 7	2-speed	110	£40
New Hudson	1011 6	3-sp. sidecar .	164	£60
	1013 4	3-sp. sidecar .	615	£40
N.Ü.T	1914 6	3-sp. sidecar .	760	£64
P. & M	1913 3}		. 636	£50
Premier	1914 35		. T42	£43
Rex	1914 6		£57	£58
Rover	1914 3	3-sp. sidecar .	+ £54	£50
. 12	1914 35		. £48	£47
Rudge	1914 5	multi sidecar.	+ £50	£57
_ n	1914 3			£42
Scott	1913 32	2-sp. sidecar .	. £50	Z48
Sunbeam	1014 0	3-sp. sidecar .	. (80	£74
_ 10	1914 35	3-speed	• £59	£58
Triumph	1914 4	3-specd	. £60	£56
21	1914 4	3-specu	. 643	244
** ***	1914 21	2-speed	+ £30	£35
_ 0	1913 32	3-sp. sidecar .	. £40	£46
Zenith		Gradua sidec:	15 £70	£62
21 ****	1913.6	Gradua, sideca	ir £45	£43
141				

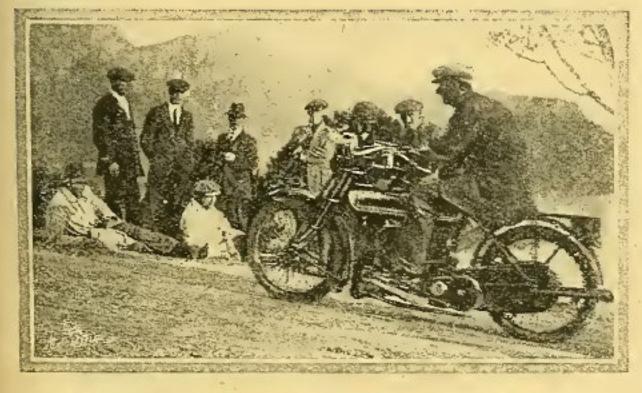


W. Heaton (23 h.p. A.J.S.), second on time and third on formula in Class II.



THE SOCIABLE SIDECAR.

Miss Daisy Stevens and a friend arrive at the Style Cop hill-climb in a double-seated side-by-side sidecar attached to a 6 h.p. A.J.S.



J Wyllie (A.J.S.), winner of the Cape Peninsula M.C.C. flexibility test.



A HAPPY TRIO. It is remarkable how canine pets are lovers of motoring. The subject has often been dealt with in the motoring press. Our picture shows an Irish terrier which can find a secure perch on the top of the tank or on the carrier, so long as he can accompany his master. The machine is a twin-cylinder A.I.S.

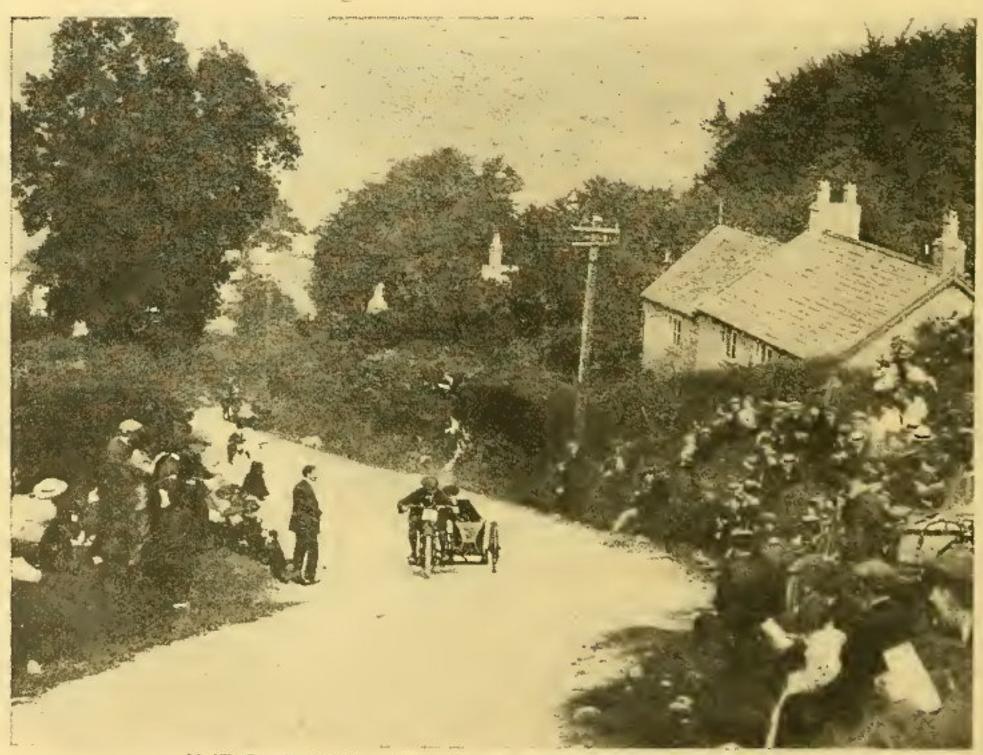
BI





At the starting point. W. Jones (23 h.p. A.J.S.) getting away.

At the starting point. W. Jones (24 h.p. A.J.S.) getting away.



H. W. Coopland (6 h.p. A.J.S. sidecar) nearing the top of Pen-y-ball.



Sidecar Run for Wounded Soldiers at Cape Town.



pleasure and assist in the complete recovery of their fellow countrymen.

The accompanying photographs were taken when a party was conveyed from the military hospital at Wynberg to the seaside resort of Minzenburg, which our Cape Town correspondent describes as the Brighton of South Africa. But, judging by the photographs of Minzenburg, we can only conclude that our correspondent has never seen Brighton or heard a true account of it.

A run organised by Cape Town motor cyclists for the benefit of wounded heroes.

APE TOWN motor evelists, following the example set by English riders, have of late been organising sidecar outings for soldiers wounded in Botha's successful campaign in what was German South-West Africa. Many of the more badly wounded are now well on the way to recovery in the Cape Town hospitals, and the sidecar outings have undoubtedly quickened the convalescence and made the time more pleasant for the gallant men. Although winter in that part of the world, the runs have been very much appreciated by all, and Cape Town motor cyclists take it as an honour to be able to give some

SCENES IN THE COAST-TO-COAST DESPATCH RIDE.
(See page 399 of the last issue)

authorities are guilty of a parallel crime. They calmldeposit extremely expensive tar surfacing upon a road foundation which was barely equal to the slow horsed traffic, which was its sole burden twenty years ago When the foundation disintegrates the costly superstructure within thre months, they lift pious hands in horro and denounce motoring and motorists Sooner or later we shall have to fac the reconstruction of the entire founda tions of many important roads. But sane roadway system is hardly practicabl so long as the business is entrusted to local enterprise and local prejudice. W stand in crying need of a centralised roa

writings from any semblance of omniscience, but it is not so. One of our naval nuts, at present "somewhere in the North Sea," had written asking me to frame handicaps for a timed hill-climb and one and five-mile sprints, to be contested on the next afternoon ashore by a baker's dozen of bicycles, ranging from a 1910 lightweight to a 1916 to h.p. Some of them had single gears, some of them had three speeds. The timing arrangements were to be of the makeshift order, and no weighing was possible. We rang up Brooklands, and the track bulbous-brains soon scented trouble and regretted they were frightfully busy. In the meantime, ye bespectacled makers of formulæ, here

(Upper) The 6 h.p. A.J.S. sidecar outfit ridden by "Sergt." Fletcher, of the Sheffield Volunteers (Motor Cycle Section). Fletcher made splendid running, and was the only man to complete the whole journey.

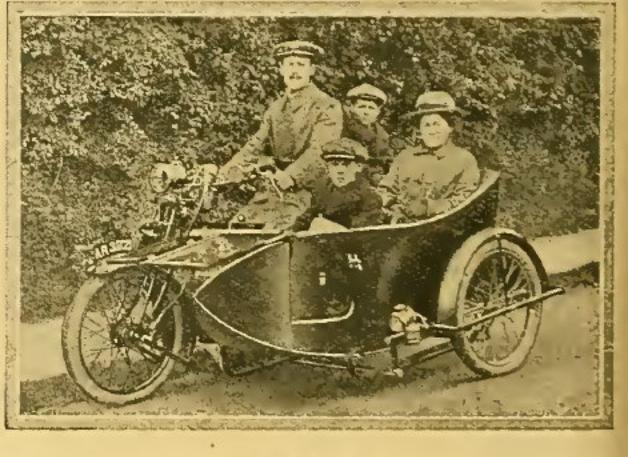
(Lower) "Private" Dover replenishing the tank of his Indian during a brief halt.

authority.



6 h.p. 1915 A.J.S. passenger outht referred to in letter from Mr. M. G. Greig on this page.

B22



A NEAT FAMILY SIDECAR OUTFIT

The owner is Mr. T. Suffling, of Hitchin, and the machine is a 6 h.p. 1915 model A.J.S. with a Bowser two-seated sidecar. Mr. Suffling is very pleased with the complete outfit, and he tells us he gets sixty miles per gallon with a full load.

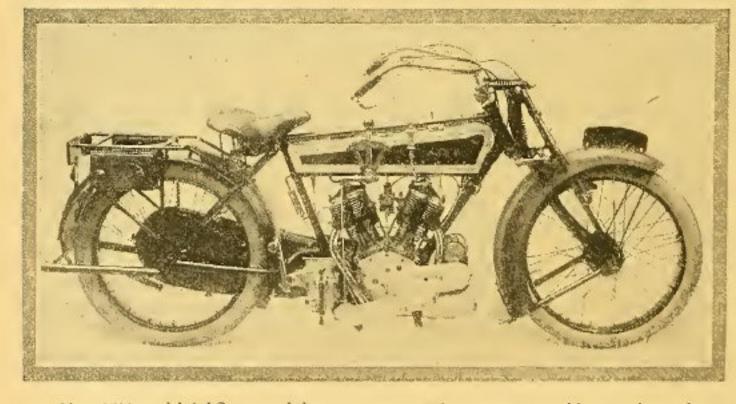
NO ALTERATIONS TO A.J.S. IN 1916.

E learn from Messrs. A. J. Stevens and Co., Ltd., that A.J.S. machines in 1916 will be exactly as produced during the present year. The entire absence of change is not only due to the fact that a large section of the works is busily employed on munitions of war (including parts for Clyno machine gun sidecars), but also to the fact that A.J.S. machines have proved so entirely satisfactory that little or no change is called for. The most popular of the series during the present year has proved to be the 6 h.p. twin-cylinder three-speed mount, which, with its detachable and interchangeable wheels, is, and will remain, a sidecar mount par excellence.

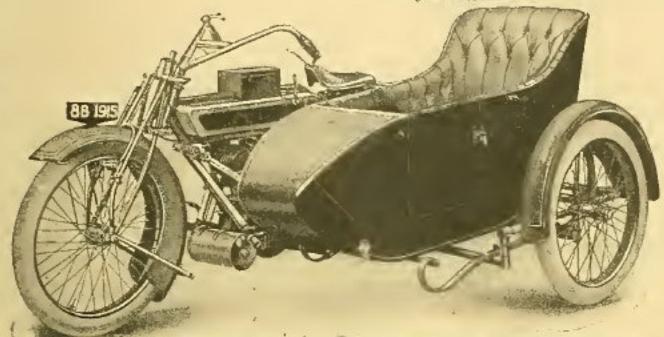
The 4 h.p. model with a sloping top tube has been a mount much sought after in 1915, but there have been difficulties connected with this model as regards

delivery.

It may not be generally known that three Princes of the Royal Danish household are enthusiastic users of the 6 h.p. combination.



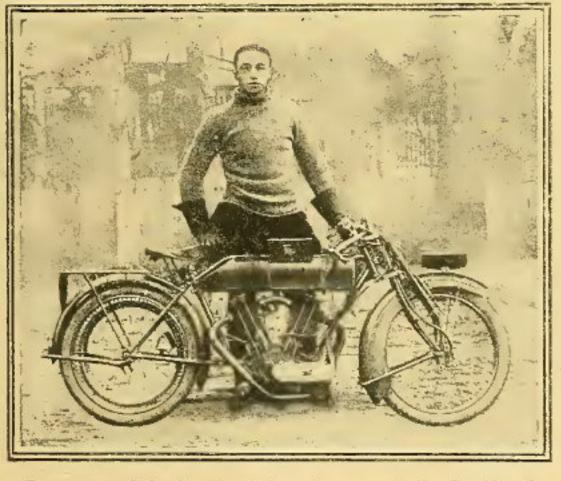
6 h p. 1916 model A.J.S.—one of the most representative passenger machines on the market. Detachable wheels, all-enclosed chain drive, and a three-speed gear are features of this mount.



MATCHLESS 8B COMBINATION. Powerful, Reliable, Silent, and Distinctive.

Owing to Government requirements, it is absolutely impossible for us to keep pace with orders for Matchless sidecar combinations, and we appeal to the Patriotism of disappointed clients to excuse the non-delivery.

H-COLLIER & SONS, LTP PLUMSTEAD · S.E.

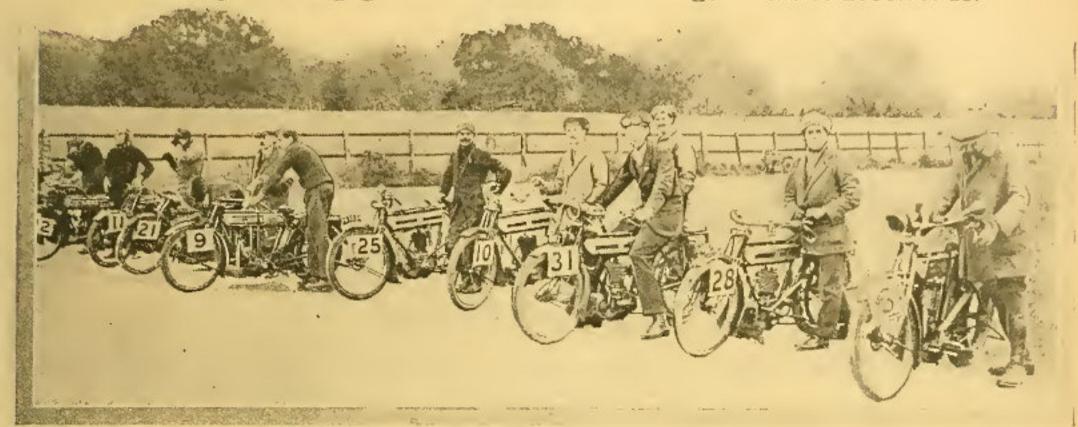


Fastest time of the day, i.e., 64.9 m.p.h., was made by the rider of this 8 h.p. twin-cylinder Matchless at the Petrograd speed trials.

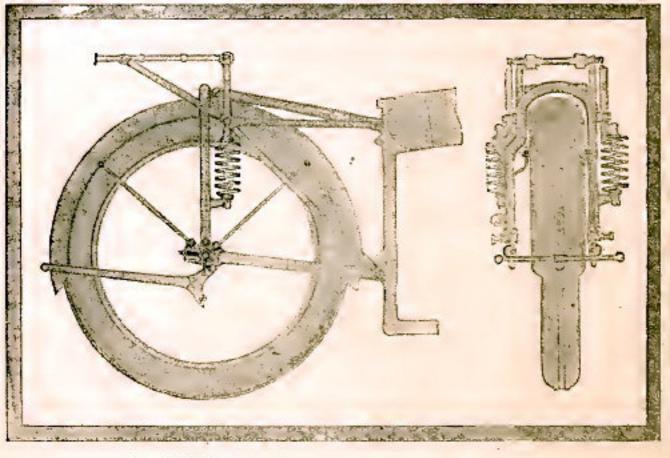


R.A.F. Motor Cycle Race Meeting.

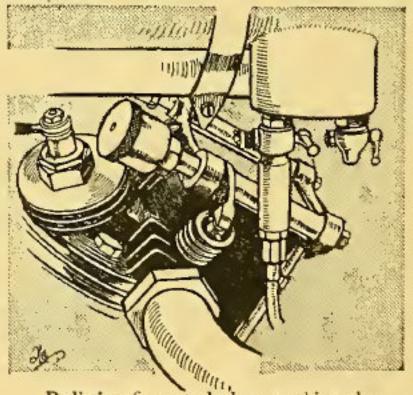
Motor Cyclists engaged on Aircraft Work arrange Event at Brooklands.



Line up for the heavyweight half-mile sprint won by P. Davey (8 h.p. Matchless).



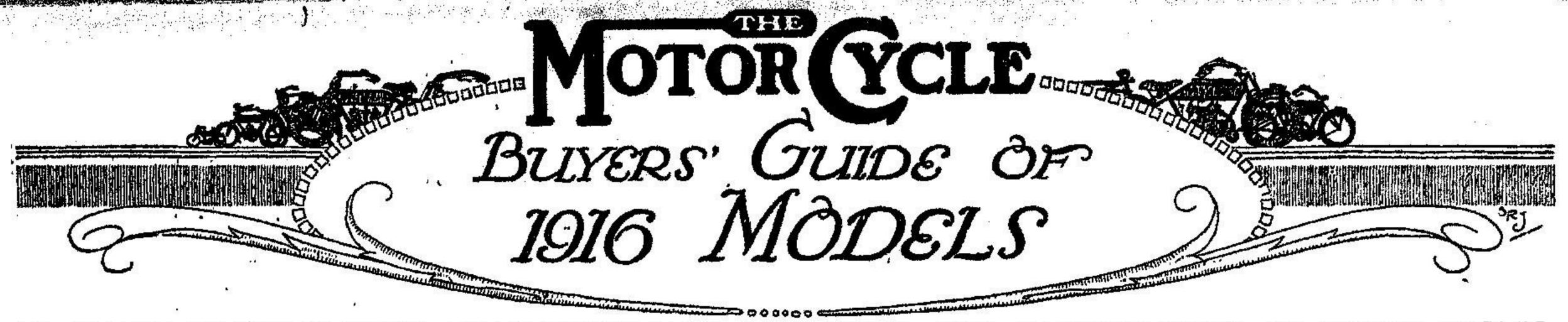
How the Matchless carrier is sprung (see letter accompanying).



Radiating fins attached to sparking plug, as used by Matchless and Motosacoche in 1913 Tourist Trophy races.



Miss Jeanse Kerr, of Thornton, File, and her 7-9 h.p. Matchless



COMPLETE SPECIFICATIONS (ALPHABETICALLY ARRANGED) AND ILLUSTRATIONS OF MOTOR CYCLES ON THE BRITISH MARKET.

In the absence of a Show, "The Motor Cycle" Buyers' Guide, which has formed an annual feature of this journal since 1906, again fulfils an important mission. Naturally, great difficulties have been encountered this year in the compilation of the Guide, owing to the fact that most of the manufacturers are either wholly or partially engaged on the production of munitions of war. A number of models are unobtainable, and in preparing the Guide we have, as far as possible, in conjunction with the manufacturers, selected for illustration and description the machine which the makers are in a position to deliver. Other models produced are noted at the foot of the Specifications.

A.B.C.

3½ h.p., 2-cyl. (180°), 70×64 mm., 494 c.c., overhead exhaust valves, steel cylinders.

Dixio magnetu. Claudel-Hobson carburetter.

A.B.C. 4-sp. countershaft goar, gate change. Chain.

Height 27in. Clearance 5½in. Wheelbase 57in.

Tyres, 26 × 2½in. Mechanical pump.

Petrol, 1½ gails. Spring frame.

Price (72. Weight, 195 lb.

Other models.—Racing machine, rigid frame, weight 150 lb., same price.

A.B.C. MOTORS, LTD.,

Abingdon "King Dick."

Hersbarn, Walton-on-Thames.

6-7 h.p., 2 cyls. (50°), 73 × 95 mm., 795 c.c., 8.s.
B. & B., Amac, or Senspray carbaretter.
Ahingdon 3-speed countershaft gear. Chain and belt (7in.)
Height 3tin. Clearance 4½in. Wheelbase 59in.
Dunlop H.S. tyres, 26 × 2½in.
Hand pump and drip feed. Petrol, 2½ galls.
Price £83. Weight 286 lb.
Other medels.—Same machine with fixed gear

and helt drive, £66; 33 h.p., I cyl., 499 c.c., as above, £69 6s.; with fixed gear, £53.

ABINGDON-ECCO, LTD., King's Road, Tyseley, Birmingham.

A.J.S.

Splitdorf magneto. Amac carburetter.

A.J.S. 3-speed countershaft gear. Chain.

Height 30in. Clearance 4 in. Wheelhase 57in.

Avon tyres, 650 × 65 mm.

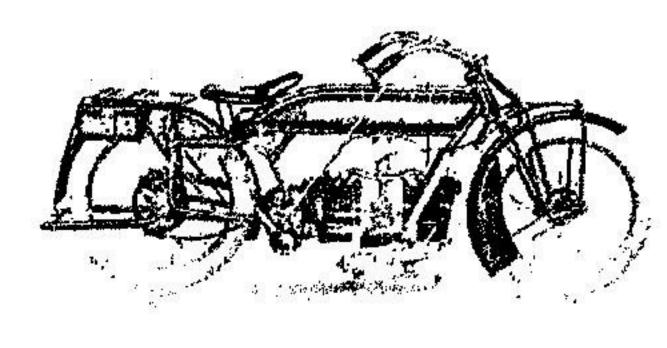
Spring-loaded hand pump. Petrol, 21 galls.

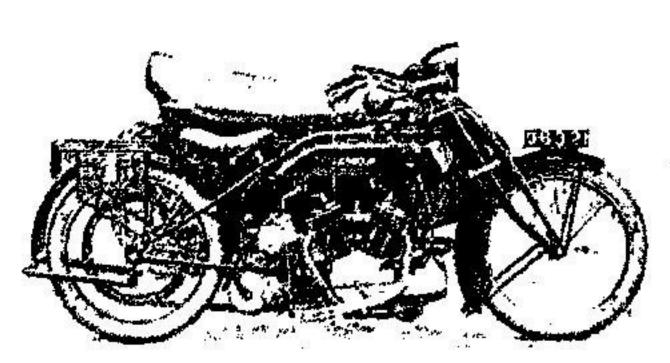
Detachable wheels. Price, 684 Weight, 280 lb.

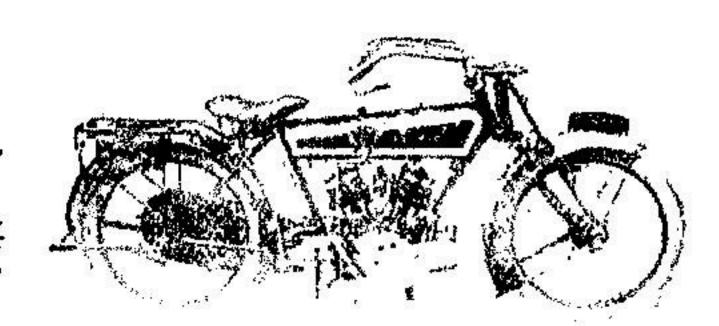
Other models.—21 h.p., 1-cyl., 349 c.c., 2 or

3-speed, 655 or 658; 4 h.p., 2-cyl., 550 c.c., 3-speed,

A. J. STEVENS AND CO. (1914), LTD. Retreat Street, Wolverhampton.







Alldays-Allon.

21 h.p., 1-cyl., 2-stroke, 70 × 76 mm., 292 c.c.
E.I.C. magneto. Senspray carburetter.
2-speed countershait gear. Chain and belt.
Height 29in.
Dunlop tyres, 26 × 21in.
Hand pump and drip tecd.
Petrol, 11 galls.
Price [42.
Other models.—Same machine with clutch, [45; single-geared, [34; de Luxe model, [52 tos.
ALLDAYS AND ONIONS CO., LTD.,
Small Heath, Birmingham.

Ariel,

3½ h.p., 1-cyl., 86.4 × 85 mm., 498 c.c., 8.8.

Splitderf magneto. B. and B. carbaretter.

Ariel 3-speed countershaft gear. Chainland helt.

Height 30in. Clearance 4½in. Wheelbase 56in.

Dunlop tyres, 26 × 2½in. and 2½in.

Hand pump and drip-feed.

Petrol, 1½ galls.

Price £64 (with sidecar, £8t). Weight, 250 lb.

Other models.—2½ h.p., 1-cyl., 2-stroke, 350 c.c.,

2-speed, £44; 3½ h.p., as above, single geared,

£49 tos.; 5-6 h.p., 2-cyl., 668 c.c., 3-speed, £74 tos.

ARIEL WORKS, LTD.,

Bournbrook, Birmingham.

Bat.

5-6 h.p. J.A.P., 2-cyl. (50°), 76 × 85 mm., 77n c.c., s.s.

Bosch magnetn. Amac carburetter.

Bat 3-speed countershaft gear. Chain and belt, rin.

Height 29in. Clearance 5in. Wheelbase 54in.

Kempshall tyres, 26 × 2½in.

Hand pump and drip feed.

Petrol, 2 galls.

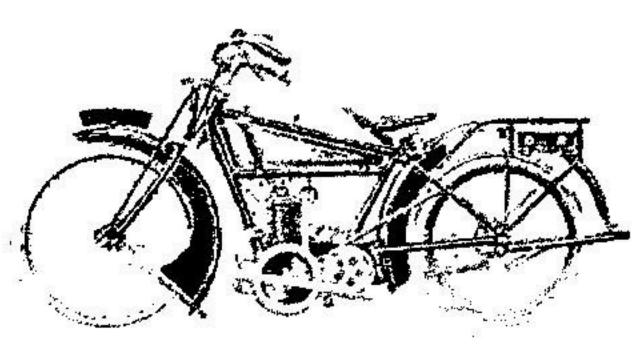
Price £73. Weight, 240 lb.

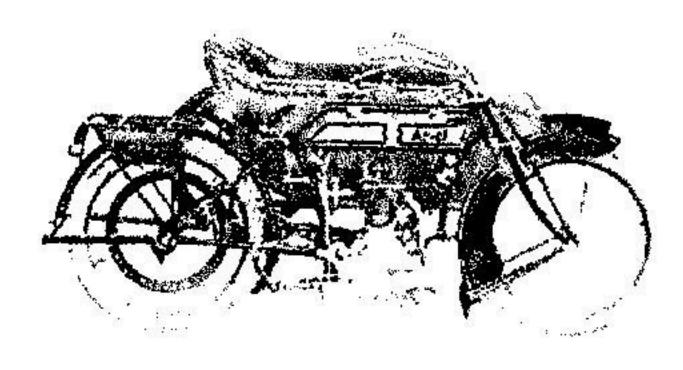
Other models. — 4½ - 5 h.p., 2 - cyl., 654 c.c.,

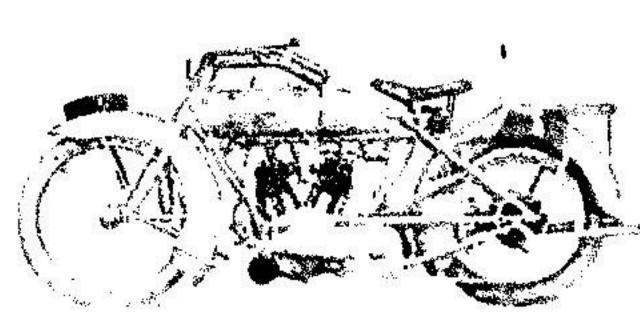
£57 10s.; 7-8 b.p., 2-cyl., 976 c.c., £75.

BAT MOTOR MANUFACTURING CO,

Denge. Louden, S.E.







J.A.P. ENGINES IN 1916.

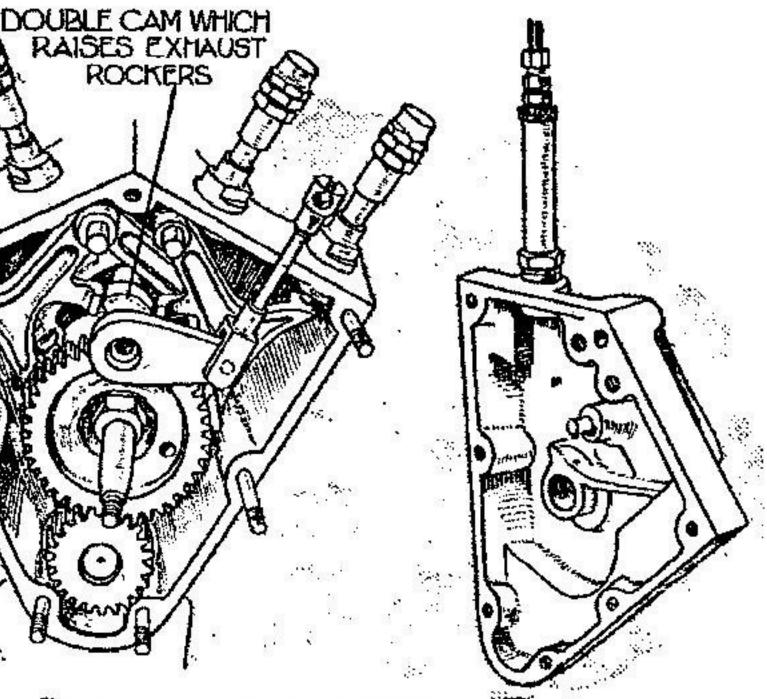
Further Details of the New Models.

N last week's issue (p. 502) we gave a description of the new J.A.P. connecting rod, and this we are now able to illustrate. It will be remembered that a phosphor bronze bush passes through from one side of the fork rod to the other, while the centre rod works directly in the centre portion of the bush, a design which allows of a greatly increased hearing surface. The chief improvement is in the design of the bush, which is composed of steel lined with phosphor bronze. The centre rod in this case has also a phosphor bronze bush.

The latest pattern J.A.P. timing gear, the new method of lifting the exhaust valves, and the latest type of adjustable'

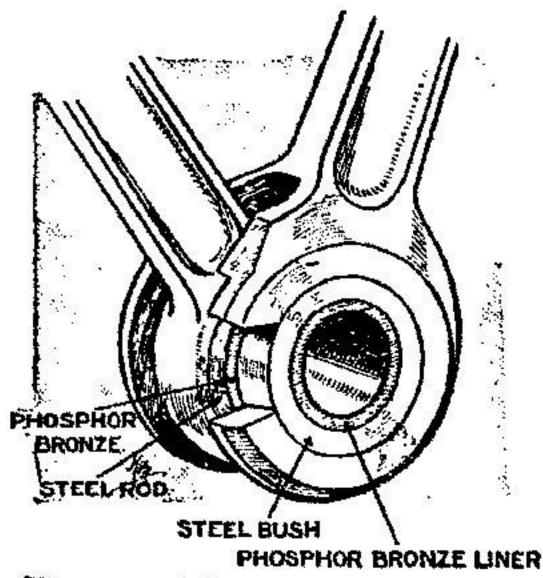
We now come to the interesting J.A.P. system of lubrication. pressure system of Inhrication is utilised, In this case the pressure is provided by the descending force of the piston. This forces a quantity of oil through a hole at the base of the crank chamber into a passage, and past the non-return valve into a box or reservoir cast upon the exterior of the crank case. This reservoir gives a sufficient head of oil to allow of a continuous flow. The only means of escape is a pipe through which it leaks into a recess under the main bearing bush into the flywheel, the oil being then led into a semi-circular recess on the flywheel boss, which presses tightly against the side of the crank case and

> registers with the oil channel, so that this recess is filled with oil under which pressure, flows through a hole in the recess through the flywheel to the centre of the crank pin, thus adequately lubricating the hig end bearing. From the crank pin it descends again to the main bearing on the pulley side. Dotted lines are also shown indicating the passage of the oil from the main bearing to the hollow bolt running the through top of the crank case, where there is an

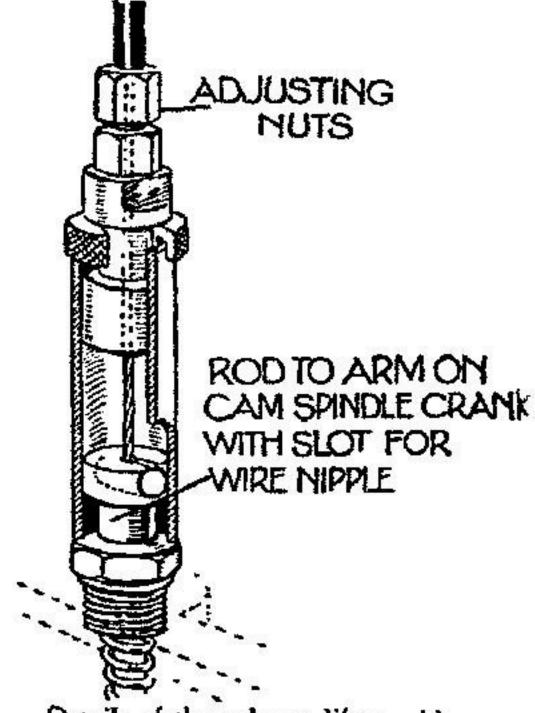


Timing gear on the latest J.A.P. engine

tappets are also worthy of note. The exhaust valves are raised by means of a double cam, which, when the exhaust lever is actuated, brings each cam in contact with two heels on the exhaust valve rockers, thus forcing them apart and causing the tappets to lift the valves.



The new J.A.P. forked connecting rod, showing the arrangement of the bushes.

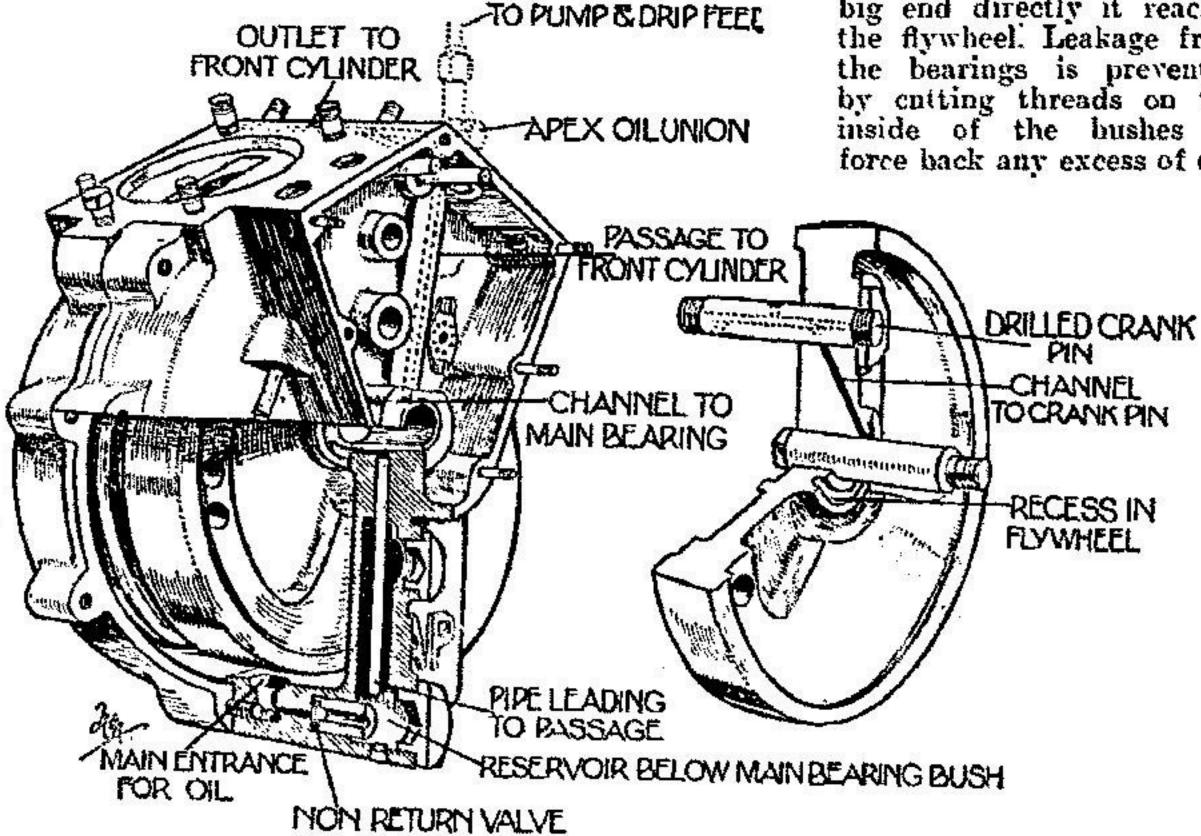


Details of the exhaust lifter cable attachment.

ontlet to the front cylinder. This bolt communicates with the apex oil nnion, to which the oil flows from the auxiliary pump or drip-feed into the crank chamber via the front cylinder; it is provided with a ball valve to prevent any blow back in the oil pipe. The uon-return valve, which controls the supply from the crank case to the oiling system, is merely a flat steel disc.

The whole system is most ingenious, as practically the same effect is obtained as if a mechanical oil pump were employed, and yet the only additional moving part is the tiny, though absolutely reliable, non-return valve. It is also interesting to note that centrifugal force aids the passage of the oil to the

big end directly it reaches the flywheel. Leakage from the bearings is prevented by cutting threads on the inside of the bushes to force back any excess of oil.



J.A.P. lubrication system

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Other model. 6 h.p. J.A.P., 770 c.c., Sturmey-Archer 3-speed countershaft, with sidecar, £88.

BROWN BROS., LTD., 22-34, Great Bastern Street, London, E.C.

Ward.

27 h.p., r-cyl., 73 × 70 mm., 293 c.c. R.I.C. magneto. Amac or Senspray carburetter. Roc'z-speed countershaft goar. 'Chain and helt. Height a8in. Clearance sin. Wheelbase 482in. Clincher tyres, 24 × 2in. Hand pump and drip feed. Petrol, 11 galls. Price £34 16s. Weight, 120 lb.

Other model.-Same machine, single geared, £26 108.

W. WARD AND SONS, Motor Engineers, Wotherby, Yorks.

Westovlan.

41 h.p. Precision, 1-cvl., 89 × 96 mm., 597 c.c., 538. Dixie magneto. Annae carburetter. Sturmey-Archer hub gear. Holt. Wheelbase 55in. Height 30in. Clearance 5in. Dunlop tyres, 26 × 21in. Hand pump. Petrol, 2 galle. Weight, 185 lh. Price £52 103.

Other models.—21 h.p. T.D.C., x-cyl., 269 c.c., 2-speed, £30 fs.; 32 h.p. Precision, x-cyl., 499 c.c., 4-speed, £54; 23 h.p. Villiers, 1-cyl., 269 c.c., 2-speed, £33 bs.; 4 h.p. J.A.P., 1-cyl., 488 c.c., 4-speed, £56; 4 h.p. J.A.P., 2-cyl., 496 c.c., 4-speed, £60; 6 h.p. J.A.P., 2-cyl., 770 c.c., £70

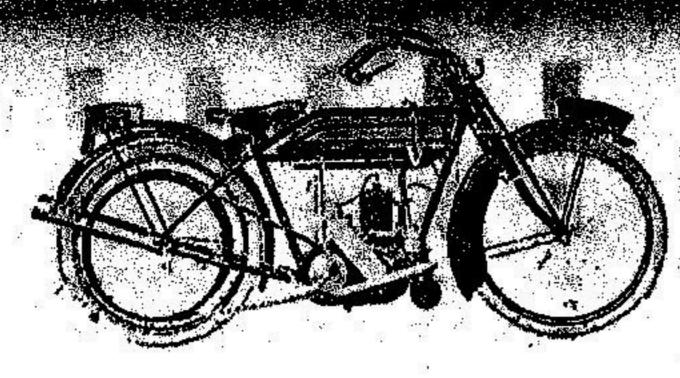
R. V. HEATH AND SON, Catherine Street, South Shields.

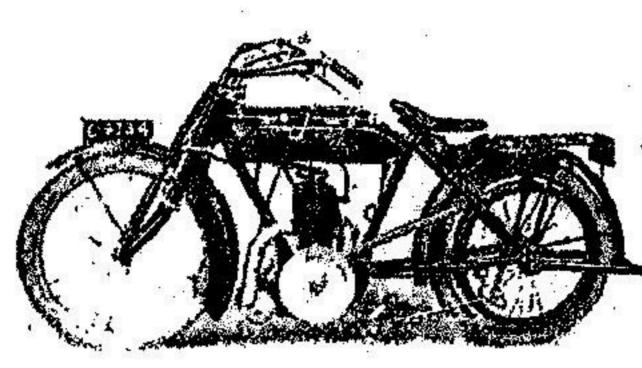
Williamson.

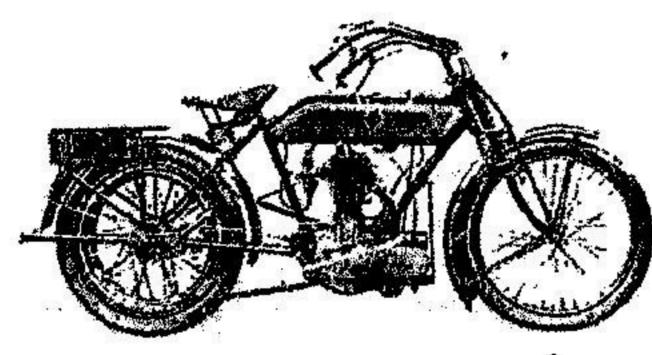
8 h.p. Douglas, 2 cyls. (180°), 85 × 85 mm., 964 C.C., S.S. Bosch magneto. Amac or B. & B. carlaretter. Douglas, 2-speed countershaft gent. Chain. Clearance, 61in. Hutchinson tyres. Hand pump and drip feed. Petrol, 17 galls. Price (100. WILLIAMSON MOTOR CO., LTD., Earlsdon, Coventry.

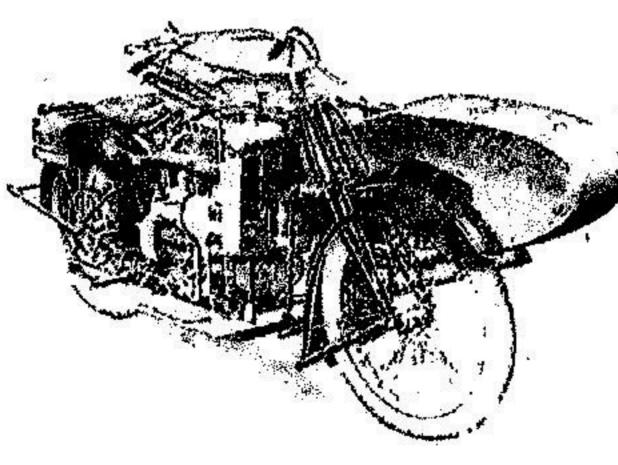
Wolf.

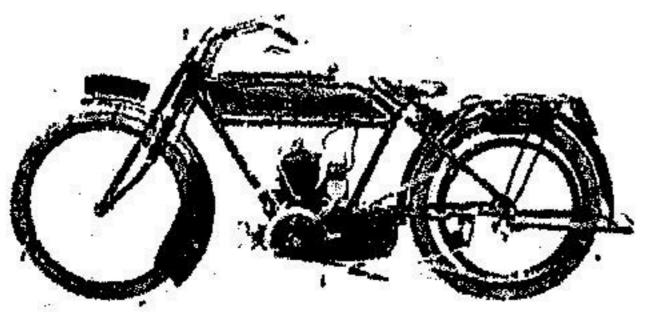
27 h.p., 1-cyl., restrike, 70 1 70 mm., 269 c.c. Dixie magneto. Amac carimetter. Conster-last gear. Chain and best. Height 284m. Woit tyres, 20 .. 2m. Hand punis and drip total. Petrol, 11 galls. Price [35 10s. 6d. Weight, 127 lla.
Other models. 25 hap. T.D.C., 150yl., 269 e.c.,
[26 11s. 6d.; 25 hap. J.A.U., 150yl., 269 e.c.,
[31 5s.; 4 hap. Abingdon, 150yl., process,
[44 12s. 6d.; 157 hap., 250yl., [75.
WULFRUNA UNGINEERING CO., ETD.,
Wolveth unplote.











Wooler.

2] h.p., x cyl., 2-stroke, 76 × 76 mm., 344 c.c. B. & B. carburetter, with pilot jet. Countershalt variable gear (7 ratios). Belt (2in.) Height 26 lin. Clearance 7 in. Wheelt are 59 in. Dunlop tyres, ruther studded, 26 × 2 in. Mechanical lubrication. Petrol, 11 galls. Spring frame, Price £47 58. Weight 170 lb. WOOLER ENG. CO., LID., Old Oak Common Lane, Willesden Junction, N.W.

Yale.

7-8 h.p., 2-cyl., 82.5 × 93 mm., 994 c.c., overhead valves. Bosch (American) magneto. Yale 2-speed countershaft gear. Sensproy carb. Chain. Height 32in. Clearance 5in. Wheelbase 84ic Goodyear tyres, 28 x 3in. Mechanical pump. Petrol, 2 galls. Price £75. Weight, 300 lb.

T. BAXTER, 36, Great Eastern Street, London, E.C.

Zenith.

4.5 h.p. J.A.P., 2-cyl. (50°). 70 × 85 mm., 654 c.c., Splitdorf magneto. Amac carburetter. Zenith-Gradua gear, in countershaft. Chain and belt, rin. Height grin. Clearance 5in. Wheelbase 54in. Hand pump. Petrol, 11 galls. Price £70 rrs. Weight, 245 lb. Other models. -3 b.p., 1-cyl., 488 c.c., £58 95.;

3 h.p., 2-cyl., 496 c.c., £59 tos. 6d.; 4-5 h.p., 2-cyl., 654 c.c., £62 178.; 6 h.p., 2-cyl., 770 c.c., 172 15s. 6d.; 8 h.p., 2-cyl., 976 c.c., 173 17s. 6d. These models can also be obtained with countershalt drive at an extra cost.

ZENITH MOTORS, LTD., Hampton Court, London.

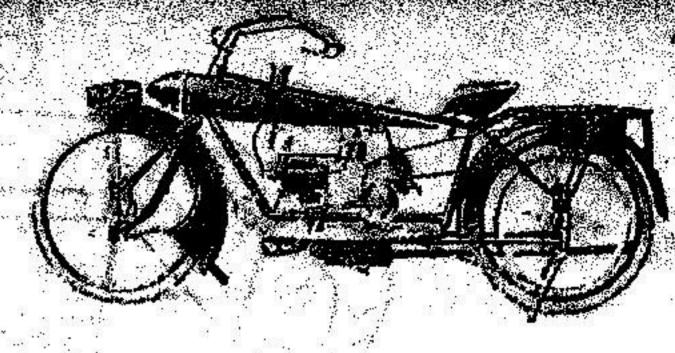
Harley-Davidson.

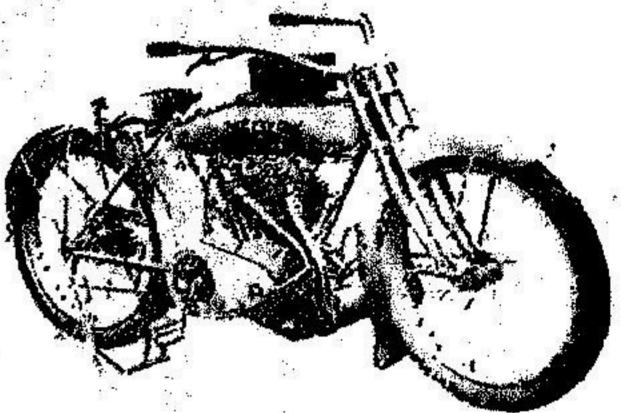
7-9 h.p., 2-cyl. (45°), 84.1 × 88.9 mm., 988.83 c.c., overhead inlot valves. Bosch magneta. Schebler carburetter. Harley-Davidson 3-sp. countershaft gear. Chain. Height 30 in. Clearance 47in. Wheelbase 59 in. Goodyear (Blue Streak) tyres, 28 × 3in. Mechanical and hand pump. Petrol, 23 galls.

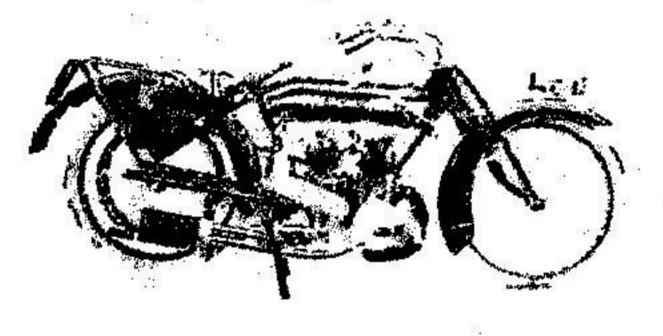
Price £80 158.

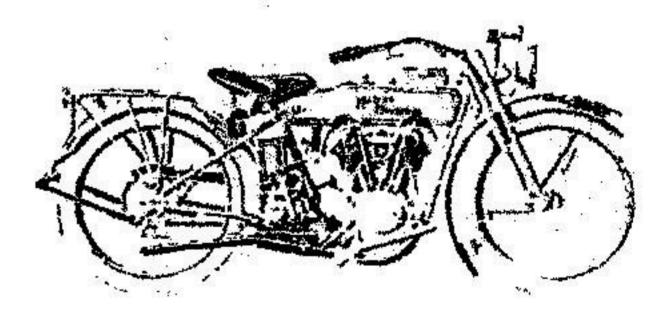
Other models, 4 h.p., 1 cyl., 565 c.c., single geared, and clutch, £63 10s. 6d.; with 3-speed countershaft, £70 15s.; 7-9 l.p., as above, single geared, £74 10s.; with Remy electrical equipment, £89; 7-9 h.p. racing machine, £78.

HARLEY-DAVIDSON MOTOR CO., LTD., Harleyson House, Newman Street, London, W.









N.B .- In connection with the prices of the 1916 models described above it may be well to throw out a warning to readers who may hereafter use this Guide for reference, that the prices quoted are those existing at this date, but cannot definitely be considered binding. This matter has been brought to our notice by more than one manufacturer, as a result of the fluctuating state of the material market. Those readers who propose placing their orders early may, of course, do so on the basis of the figures given, but should materials jurther increase in cost, then naturally it must be assumed that prices will be advanced in consequence. As regards delivery, several weeks of waiting are usually the rule, so that those in a position to place their orders early would be well advised to do so

4 h.p., 1 cyl., 82 × 120 mm., 633 c.c., s.s. C.A.V. magneto. B. & B. carburetter. Sturmey-Archer 3-speed countershalt gear. Chain or chain and belt (1in.) Height 29io. Clearance 4in. Wheelbase 54in. Dunlop tyres, 26 × 23in. Hand pump and drip feed. Petrol, 11 galls. Price £68 15s. 6d. Weight 248 lb. Other models.—33 h.p., 1 eyl., 490 c.c., as above, £66 3s.; T.T. adjustable pulley. £50.

> NORTON MOTORS, LTD., Sampson Road North, Birmingham.

N.U.T.

3½ b.p. J.A.P., 2-cyl. (50°), 70 × 64½ mm., 496 c.c.. Amac carburetter.

3-speed countershaft gear. Chain and belt. Height 30in. Clearance 32in. Tyres, 26 × 21in.

Hand purop and drip feed. Price £69 9s.

Other models,-24 h.p., 2-cyl., 350 c.c., 3-speed, £69 9s.; as above, single gear, £56 4s.; 6 h.p., 2-cyl., 770 c.c., 3-speed, 180 9s. 6d.; 8 h.p., 2-cyl., 976 c.c., £82 135. 9d. NEWCASTLE-UPON-TYNE MOTOR CO., LTD.,

South Benwell Newcastle-upon-Type.

O.K. 2 h.p., 1-cyl., 58×72 mm., 190 c.c., overhead inlet. Dixie magneto. Amac carburetter. 2-speed countershaft gear. Chain and helt, Height 3oin. Clearance 77in. Wheelbase 51io. Clincher tyres, 26 % gin. Hand pump.

Weight, 120 lb. Price £31 10s. Other model.—2; h.p., 1-cyl., 292 c.c., £32 115. HUMPHRIES AND DAWES, Hall Green, Birmingnam,

Omega.

3 h.p., z-cyl., 2-stroke, 75 × 76 mm., 340 c.c. E.I.C. magneto. B. and B. carburetter. 2-speed countershaft gear. Chain and beit, lin. Height 294in. Clearance 34in. Duolop tyres, 26 × 2in. Drip feed. Petrol, 11 galls. Price (37 16s. Weight, 135 lb. W. J. GREEN, LTD., Croft Road, Coventry.

Overseas.

6 h.p., 2-cyl., 79 × 86 mm., 842 c.c., s.s. Splitdori or T.-B. magneto. Amac carburetter. Sturmey-Archer 3-speed countershaft gear. Cham and belt. Height 3141. Clearance 5in. Wheelbase 54in. Tyres, 650 × 65 mm. Hand pump and drip feed. Petrol, a galls. Price (70. Weight, 255 lb.

Other model.—31 h.p., 1-cyl., 499 c.c., Sturmey Archer 3-speed countershaft, £53. OVERSEAS MOTOR CO., LTD., 1a, Johnstone Street, Ladywood, Birmingham.

Norton.

shaft, £65. MOTOSACOCHE, LTD., Kenmont Works, College Park, Willesden Junction, N.W.

Other models.-23 h.p. M.A.G., r-cyl., 290 c.c.,

variable gear, £35 145.; single geared, £31 105.; 3] h.p. M.A.C., 2-cyl., 496 c.c., 2-speed counter-

Motosacoche.

6 h.p. M.A.G., 2-cyl. (45°), 72 × 91 mm., 742 c.c..

Height 31in. Clearance 4in. Weight 514in.

overhead inlet, enclosed tappet rods.

Enfield 2-speed countershatt gear. Chain.

Hutchinson (small car) tyres, 630 x 65 mm.

liand pump and drip feed. Petrol, 2 galls. Price 1,77. Weight, 265 lb.

Dixie magneto. Amac carburetter.

New Comet.

2} b.p., 1-cyl., 2-stroke, 62 × 70 mm., 211 c.c. 2-speed countershaft gcar. Chain and belt. · Height 29 in. Clearance 5in. Wheelbase 51in. Tyres, 26 % 2in. Automatic lubrication. Petrol, 11 galls.

Price £27 (without 2-speed gear). Weight, 108 lb. Other models.-23 b.p., x-cyl., 2-stroke, 349 c.c., £35; 2 h.p. Precision, 1-cyl., 199 c.c., 2-speed, [29; 3] h.p., z-cyl., 499 c.c., [44; 6 h.p. J.A.P., 2-cyl., 770 c.c., [68 105.; 8 h.p. J.A.P., 2-cyl., 976 c.c., £70.

A. H. HADEN, Princip Works, Birmingham.

New Hudson.

6 b.p., 2-cyl. (50°), 76 × 85 mm., 770 c.c., s.s. Standard magneto. B. and D. carburetter. New Hudson 3-speed countershaft gear. Chain and belt. Height 30in. Clearance 5in. Wheelbase 57in. Dunlop tyres, 650 > 65 mm. Hand pump and drip feed. Petrol, 2 galls. Price £75 128. Weight, 300 lo.

Other models,-21 h.p., 1-cyl., 2-stroke, 211 c.c., 2-speed countershaft gear, [38; 4 h.p., 1-cyl., 199 C.C., 3-speed countershaft gear, [65. NEW HUDSON CYCLE CO., LTD.,

New Imperial.

Summer Hill Street, Birmingham.

21 h.p. J.A.P., 1-cyl., 70 × 76 mm., 292 c.c., s.s. E.I.C. magneto. B. and B. or Amac carburetter. New Imperial 2-speed gear. Chain and belt. Height 30in. Clearance 6in. Wheelbase 51in. Dunlop tyres, 26 × 2in. Automatic forced lubrication. Petrol, 11 gall. Price £43 15. Weight, 132 lb.

Other models-Lady's 21 h.p., 3-speed, clutch, and kick starter, £45 3s.; 31 h.p., 1-cyl., 488 c.c., (60; 6 h.p., 2-cyl., 770 c.c., £75 4s.; 8 h.p., 2-cyl., 976 c.c., with sidecar, £91 9s.

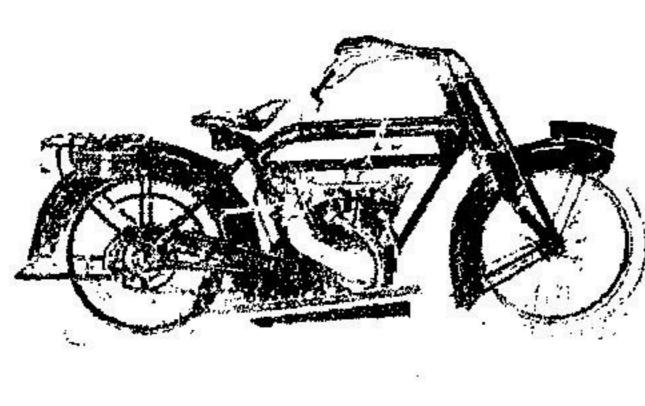
NEW IMPERIAL CYCLES, LTD.,

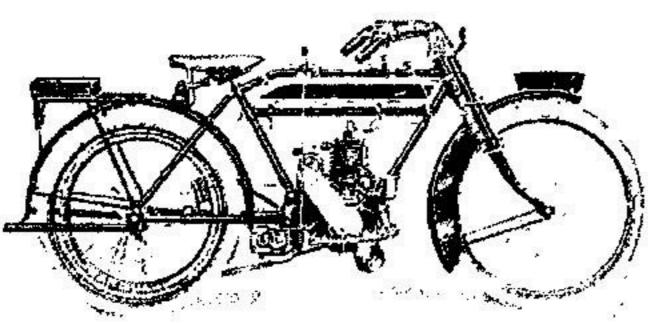
Princep Street, Birmingham.

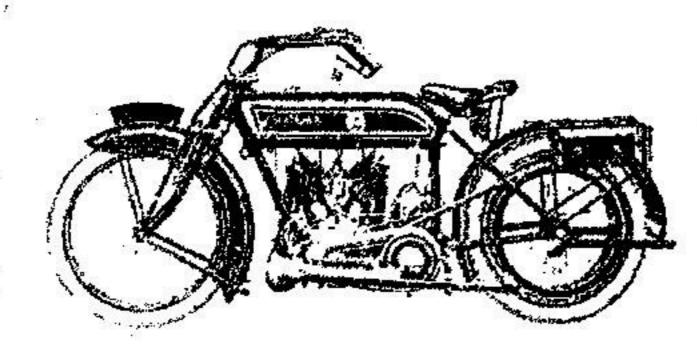
New Ryder.

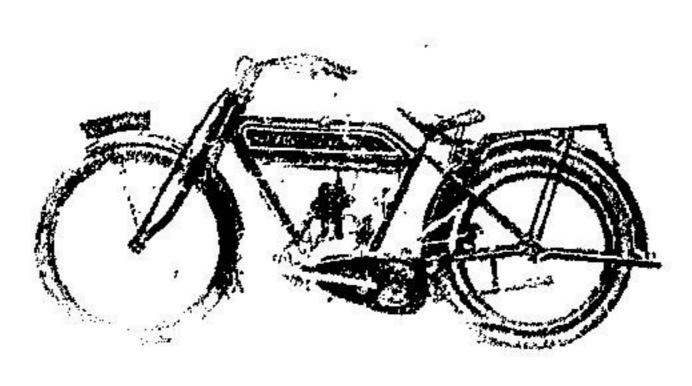
2 h.p., 1-cyl., 2-stroke, 70 × 70 mm., 269 c.c. Dixie magneto. Amac carburetter. Single geared. Belt, 3in. Height 28in. Clearance 74in. Wheelbase 58in. Hutchinson tyres, 26 × 2in. Drip teed. Petrol, 11 galls. Price (28 138, 6d. Weight, 130 lb.
Other models.—Same machine, 2-speed, (35, NEW RYDER MOTOR CYCLE CO., LTD.,

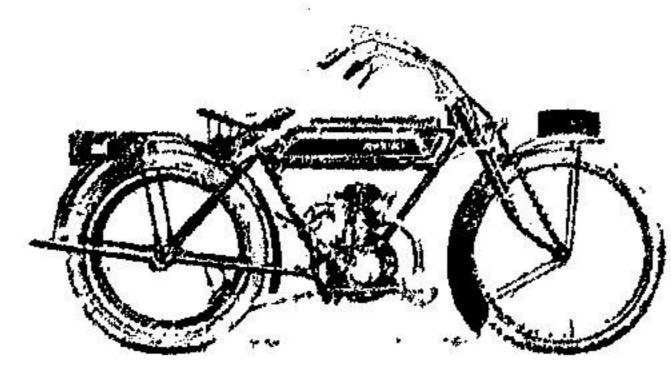
76, Belmont Row, Birmingham.

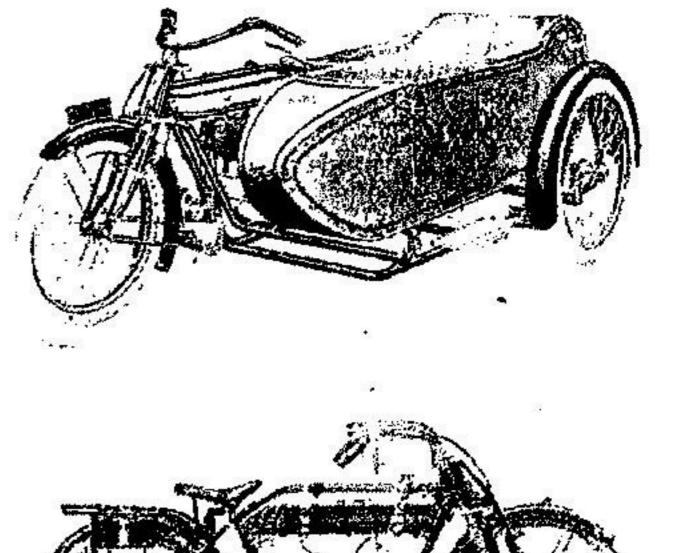


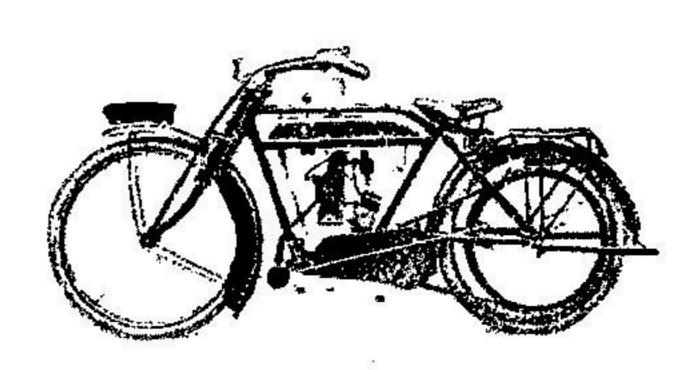


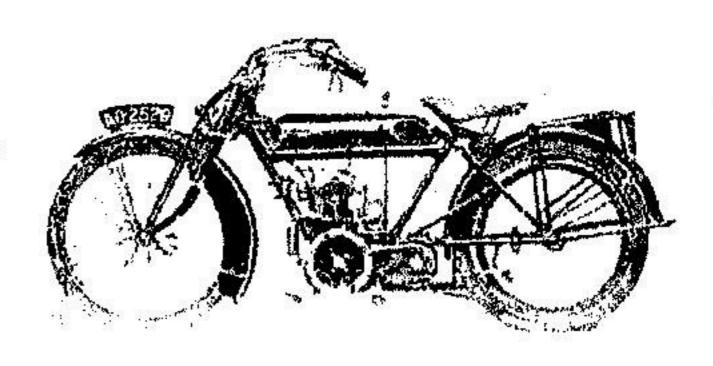


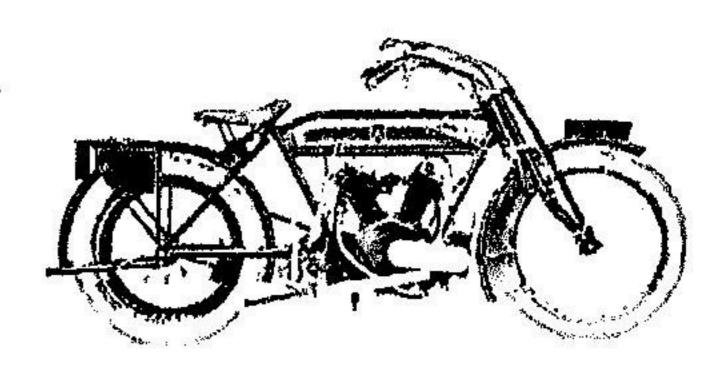












J.E.S. automatic carburetter. Dixie magneto. Belt, gin. Single geared. Wheelbase 44in; Height 36in. Clearance gin. Dunlop, 26 × 11in.

Hand pump. Petrol, 4 gall.

Weight, 73 lb.
J. E. SMITH, Price £23. J.E.S. Motor Works, Gloucester.

J.H.

al h.p. Villierz, 1-cyl., 2-stroke, 70 × 70 mm., 269 C.C. E.I.C. magneto. Amac carburetter.

a-speed countershaft gear. Chain and belt. Height 28in. Clearance 5in. Wheellase 51in. Dunlop or Palmer tyres, 26 × 2in. Drip feed. Petrol, 11 galls.

Weight, 135 lb. Price £39 55,

Other models.—34 h.p. J.A.P. or M.A.G., 2-cyl., 496 c.c., 3-speed, £70; 6 h.p. J.A.P. or M.A.G., 2-cyl., 770 c.c. or 742 c.c., 3-speed, £84 105. 8 h.p. J.A.P. or M.A.G., 976 c.c. or 995 c.c., 3-speed, with sidecar, £99; lady's model, as above, £40 8s.

J.H. MOTOR ENGINEERING WORKS, Castle Mill Street, Mumps, Oldbam.

Kumfurt.

21 h.p. Villiers, 1-cyl., 2-stroke, 70 × 70 mm., Thomson-Bennett magneto. Senspray carburetter. 2-speed countershaft gear.

Height 28in. Clearance 4lin. Wheelbase 53io. Dunlop tyres, 26 × 2in. Hand pump.

Petrol, 11 galls.

Weight, 140 lb. Price £40 10s.

Other models.-Same machine, single geared. £31 108.; lady's model, as above, £42 108.; 44 h.p. Precision, 1-cyl., 597 c.c., Sturmey-Archer 3-speed countershaft, [66; 6 h.p. J.A.P., 2-cyl., 770 c.c., 3-speed, £78 10s.

KUMFURT MOTOR CYCLE AND ACCESSORIES CO., Cookham Rise, Berks.

Lea-Francis.

31 h.p., J.A.P., 2 cyls. (50°), 70 × 64.5 mm., 496 e.c., Bosch (American) mag. Amac carb.

Lea-Francis 3-speed countershalt gear. Chain. Height 30in. Clearance 51in. Wheelbase 55in. Palmer Cord tyres, 26 × 28in. Hand pump and drip feed. Petrol, 13 galls.

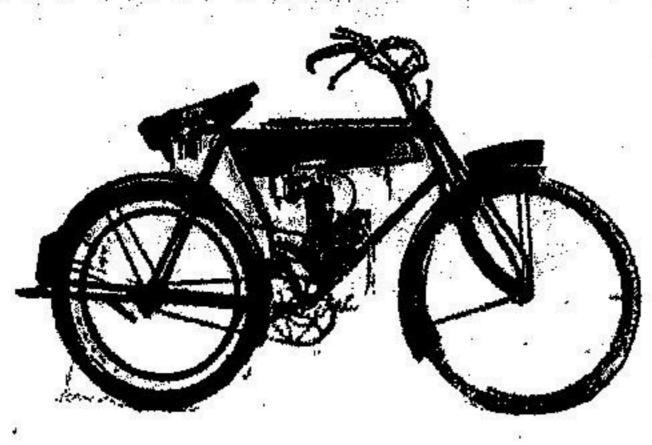
Price £72 198. 6d.

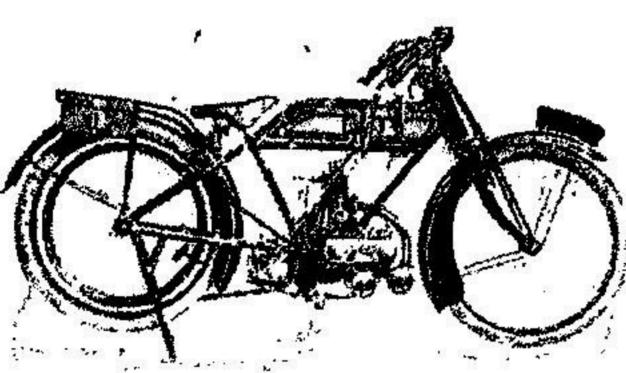
LEA AND FRANCIS, LTD., Lower Ford Street, Coventry. .

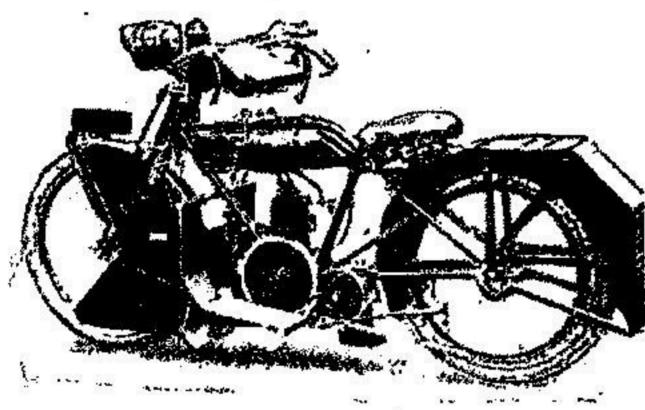
Levis.

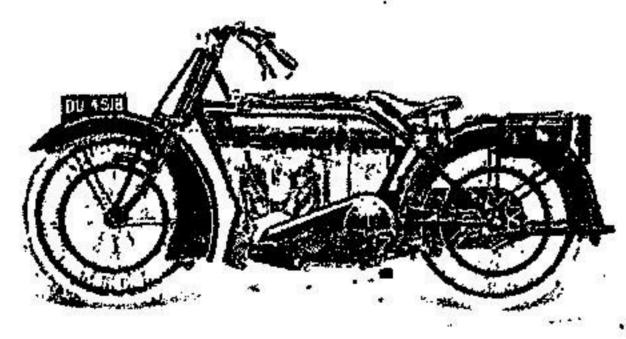
2} h.p., 1 cyl., 2-str., 62 × 70 mm., 211 c.c. Dixle or E.I.C. mag. Amac or B. & B. carb. Single-gcared. Belt (§in.)
Height 28ia. Clearance 4in. Wheelbase 50in. Tyres, 24 × 2in. Semi-automatic lubrication. Petrol, 11 galls. Price (30 16s. Weight 100 lb.

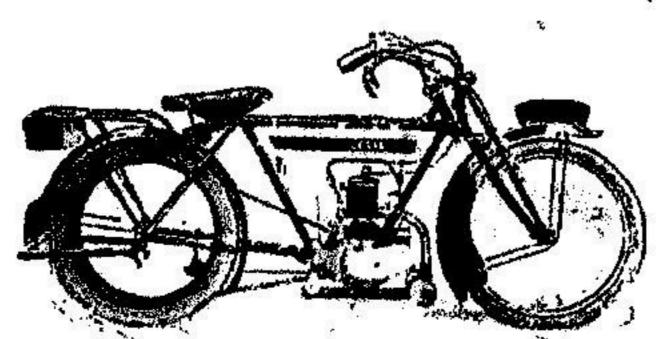
BUTTERFIELDS, LTD., Stechford, near Birmingham











Lincoln Elk.

6 h.p., 2-cyl. (50°), 76 × 85 mm., 770 c.c., s.s. B. and B. carburetter. Lincoln-Elk countershaft gear. Chain and belt, Height 30in. Clearance 5io. Wheelbase 55in. Palmer tyres, 26 × 24in. Drip feed. Petrol, 2 galls.

Price £57. Weight, 265 lb. Other models.-2½ h.p., r-cyl., z-stroke, 269 c.c., £27; 2\frac{1}{2} h.p., 1-cyl., 349 c.c., £30; 1 h.p., 1-cyl., 401 c.c., £33 109.; 3\frac{1}{2} h.p., 1-cyl., 499 c.c., £37; 4\frac{1}{2} h.p., 1-cyl., 597 c.c., £48.

JAMES KIRBY, Broadgate, Lincoln.

L.M.C.

3½ h.p., 1-cyl., 85 × 88 mm., 499 c.c., s.s. Cariton or Thomson-Bennett magneto. B. and B. or Seospray carburetter.
Stormey-Archer 3-speed countershaft gear. Chain and belt. Height grin. Clearance sin. Wheelbase sain. Tyres, 26 × 2lin. Hand pump and drip feed. Petrol, 2 galls. Price (62. Weight, 220 lb.

Other models .- 41 h.p., 1-cyl., 597 c.c., 3-speed countershaft, £64; 6 h.p., 2-cyl., 842 c.c., 3-speed countershaft, 174. LLOYD MOTOR ENGINEERING CO., LTD., Monument Road, Birmingham.

Matchless.

7 h.p., 2-cyl., 82 × 94 mm., 996 c.c., overhead inlet. Splitdorf magneto. Amac carburetter. Matchless 3 speed countershaft gear. Chain, Height 30in. Clearance 5in. Wheelbase 58io. Hutchinson tyres, 26 × 3in. Hand pump and drip feed. Petrol, 21 galls. Price £93 18s.

H. COLLIER AND SON, 44, Plumstead Road, Plumstead, S.E.

Metro.

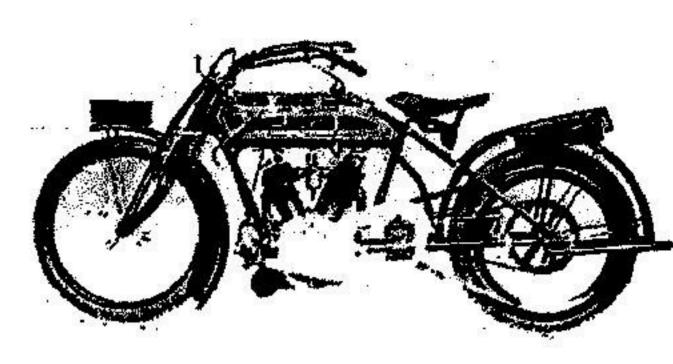
21 h.p., t-cyl., 2-stroke, 70 × 70 mm., 269 c.c. E.I.C. magneto. Senspray or Amac carburetter. Single gear. Belt, \$in. Height 30in. Clearance, 5in. Wheelbase 50in. Palmer or Moseley tyres, 26 × 2in. Hand pump and drip feed. Petrol, 1 gall. Price £28 10s. METRO MANUFACTURING AND ENG. CO.,

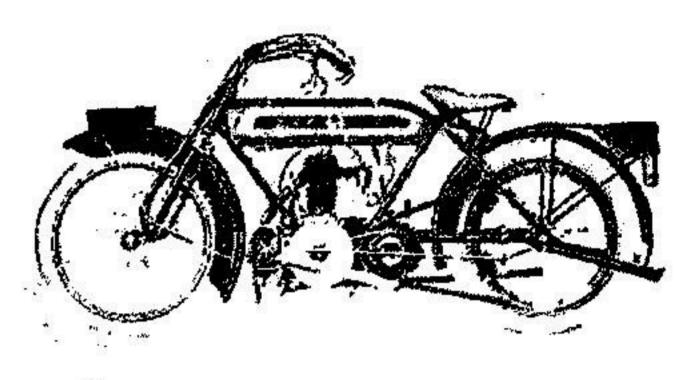
Monopole.

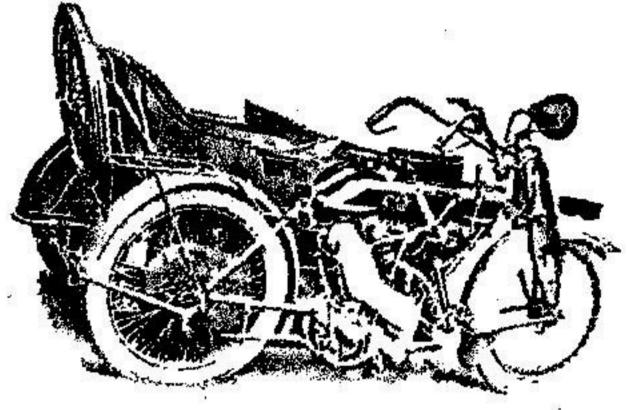
Adderley Road, Saltley, Birmingham,

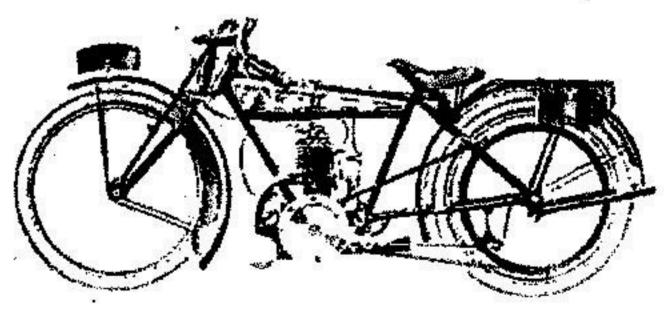
2½ h.p. Villiers, 1-cyl., 2-stroke, 70 × 70 mm., 269 c.c. Senspray carburetter. Jardino 2-speed countershaft gear. Chain and belt, Jin. Height 27in. Clearance 4io. Wheelhase soin. Duniop tyres, 24 × 2in. Hand pump and drip feed. Petrol, 11 galls.

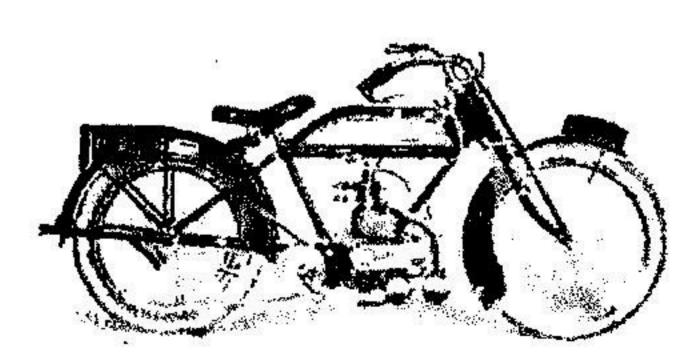
Other model.—Same machine, single geared. MONOPOLE CYCLE AND MOTOR CO., LTD., Poleshill, Coventry.











Grandex.

2\frac{1}{2} h.p. Precision, 1-cyl., 2-stroke, 64 × 70 mm.
225 c.e.

Splitdorf magneto. Amae carburetter.

2-speed countershaft gear. Chain and belt.

Height 28in. Clearance 5in.

Hutchinson tyres, 2\frac{1}{2}in.

Hand pump and drip feed. Petrol, r gall. Price £35. Weight, 125 lh.

Other models.—2\frac{1}{2} h.p., 1-eyl., 200 c.c., \(\)30;
2\frac{1}{2} h.p., 1-eyl., 350 e.c., \(\)35; 2\frac{1}{2} h.p., 1-cyl.,
202 c.c., \(\)35; 3\frac{1}{2} h.p., 1-eyl., 499 e.c., \(\)40; 4\frac{1}{2} h.p.,
1-cyl., 597 c.c., \(\)400; 4 h.p., 2-cyl., 499 e.c., \(\)40;
6 h.p. and 8 h.p., 770 c.c. and 976 c.c., \(\)70.

GRANDEX MOTOR CYCLE CO.,
86, Gray's Inn Road, London, W.C.

Hazlewood.

5-6 k.p. J.A.P., 2-cyi., 70 x 85 mm., 654 c.c., s.5-Dixie magneto. B. and B. carburetter.
Countershalt gear. Chain and heit, 1in.
Height 28in. Clearance 4 in. Wheelbase 54in.
Hutchinson tyres, 650 x 65 mm.
Hand pump and drip feed.
Petrol, 11 galls.
Price (74. Weight, 245 lb.
Other model.—4 h.p., 1-cyl., 488 c.c., £63.
HAZLEWOODS, LTD.,
West Orchard, Coventry.

Henderson.

8 h.p., 4-cyl., 998 e.c.

Berling magneto. Schebler carburetter.

Henderson 2-speed bub gear. Chain.

Height 29½in. Clearance 5½in. Wheelbase 58io.

Tyres, 28 × 3in.

Mechanical and drip feed.

Petrol, 2½ galls.

Price £86 2s.; with sidecar, £105. Weight, 295 lb.

ROBERTSON'S MOTORS, L'ID.,

1578, Great Portland Street, London, W.

Hobart.

2 h.p. Villiers, 1-cyl., 2-stroke, 70 × 70 mm., 269 e.c.

U.H. magneto. Amac carburetter.

Chater-Lea 2-sp. constershalt gear. Chain and belt.

Height 28in.

Dunlop or Hutchinson tyres, 26 × 210.

Hand pump and drip feed.

Petrol, 1 gall.

Price £36 15s.

Other models.—Same machine, single geared.

Other models.—Same machine, single geared, (30 98.; 6 h.p., 2-eyl., 770 c.c., Sturmey-Archer 3-speed countershaft gear, with skleear, £88 45. HOBART BIRD AND CO., LTD., St. Patrick's Road, Coventry.

Hockley.

27 h.p., 1-cyl., 2-stroke, 70 × 70 mm., 269 c.c. M. and L. magneto. Senspray carburetter.

Coar to order. Belt, Jin.

Height 30in. Clearance 5 in. Wheelbase 50in.

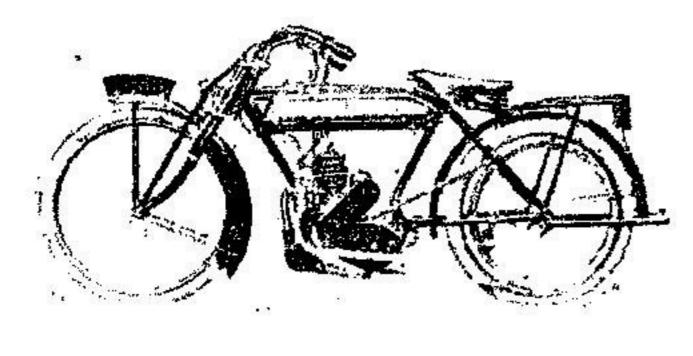
Dunlop tyres, 26 × 2 in.

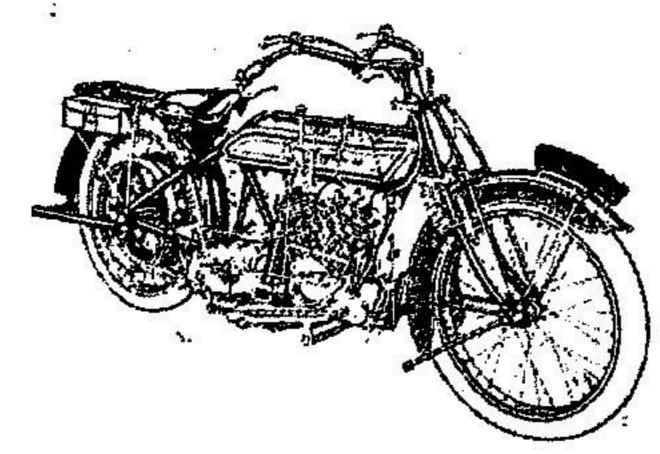
Liand pump and drip feed with three-way tap.

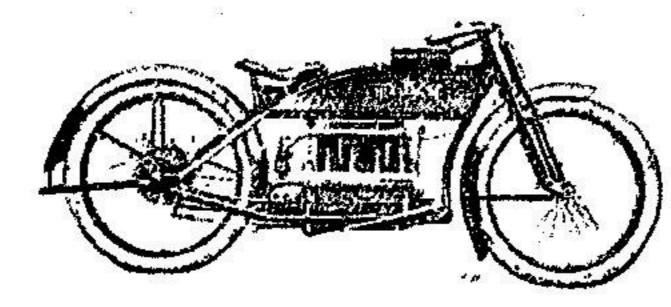
Price (32 in. od. Weight, 130 in.

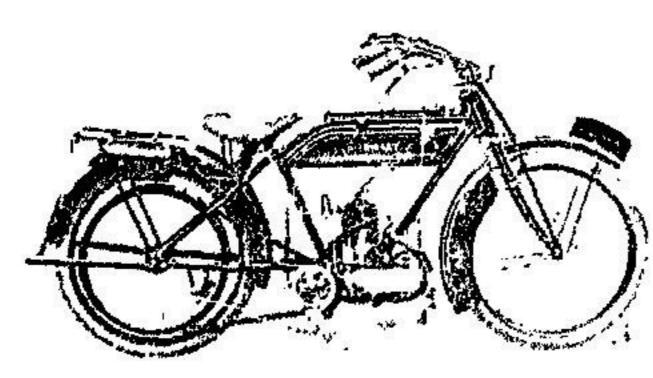
HOCKLEY MOTOR MFG. CO., LTD.,

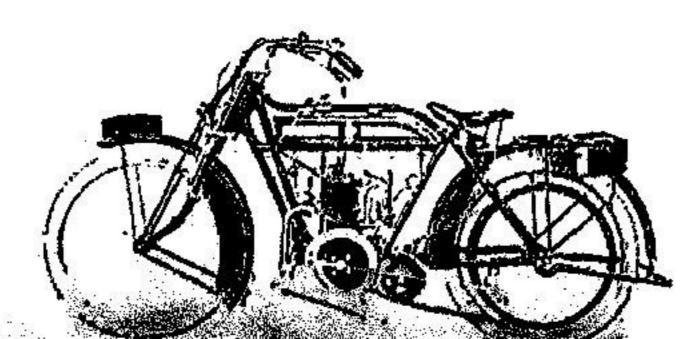
126, Berr Street, Birmingham











Indian.

7 h.p. "Powerplus," 2-cyl., 79 × 100 mm., 990 c.c., 8.S.

Dixie magneto. Indian carburetter.
Indian 3-speed countershaft gear. Chain.
Height 29 m. Clearance 5\frac{2}{3} m. Wheelhase 59 m.
Dunlop tyres, 28 × 3 m.
Petrol, 2 gails.
Spring frame and dynamo lighting.
Mechanical pump. Price 690.

Other models.—24 h.p., 1-cyl., 2-stroke, 215 c.c., 3-speed countershaft. [49 10s.; 5 h.p., 2-cyl., 684 c.c., 3-speed countershaft gear, £70; 7 h.p., 2-cyl., 994 c.c., 3-speed, battery lighting, £78; as above, with rigid frame and without dynamo lighting, £75.

HENDEE MANUFACTURING CO., 366, Euston Road, London, N.W.

Invicta.

2] h.p. Villiers, 1-cyl., 2-stroke, 70 × 70 mm., 269 c.c. Senspray carburetter.

Jardine 2-sp. countershaft gear. Chain and helt. Height 27in. Clearance 4 in. Wheelbase 49in. Tyres, 24in. or 26 × 2in.

Drip feed.

Petrol, 1½ galls. Weight, 148 lb.

Other model.—Same machine, single geared.

A. BARNETT AND CO.,

West Orchard, Covenity.

Ivy.

5 h.p. J.A.P., 2-cyl., 70 × 85 mm., 654 c.c., s.s.
Splitdorf magneto. Amac carburetter.
Sturmey-Archer 3-speed countershaft gear.
Chain and belt.
Height 31in. Clearance 5\frac{1}{2}in. Wheelbase 58in.
Drip feed.
Price (64. Weight, 250 lb.

Other models.—31 h.p. J.A.P., 2-cyl., 496 c.c., as above; £62; single geared, £50; 21 h.p., 1-cyl., 2-ctroke, 225 c.e., £29 148. to £41 16s.

S. A. NEWMAN, LTD.,
Lichfield Road, Aston, Birmingham.,

Ixion.

21 h.p. Peco, r-cyl., z-stroke, 75 × 79 mm., 349 c.c. E.I.C. magneto. Amac carburetter.

Sturmey-Archer 3-speed hub gear. Belt. In. lieight 29 in. Clearance 4 in. Wheelbase 52 in. Dunlop tyres, 26 × 2 in. Hand pump and drip feed.

Petrol, 11 gails.

Price [55, with sideear. Weight, 180 lb. Other models.—21 h.p. Villiers, r-cyl., 2-stroke,

Other models.—2) h.p. Villiers, r-cyl., 2-stroke, 269 c.c., £28 tos.; with countershalt gear, £35 tos.; 27 h.p. Villiers, r-cyl., 749 c.e., £48 tos.
IXION MOTOR MANUFACTURING CO., Great Tindal Street, Ladywood, Birmingham.

James.

3½ h.p., 2-eyl., 64 × 77 mm., 496 c.e., 3.3.

Amac, B. and B., or Senspray carburetter.

James 3-speed countershaft gear. Chain.

Height 20¼in. Clearance 4¼in. Wheelbase 52in.

Dunlop or Palmer tyres, 26 × 2¾in.

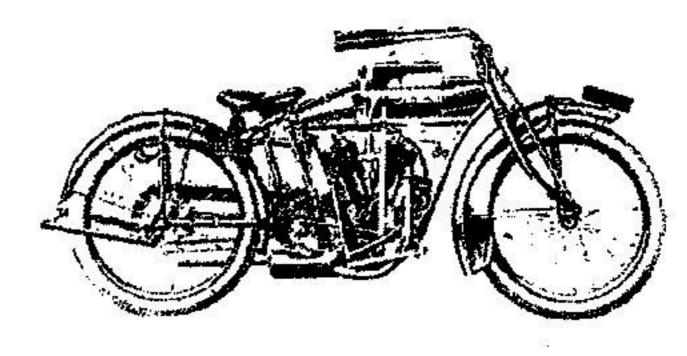
Hand pump and drip feed.

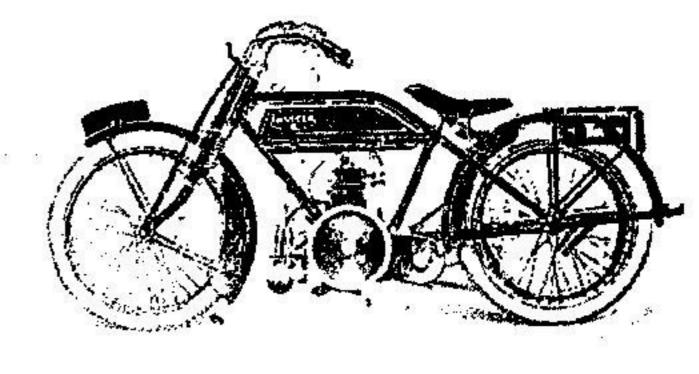
Petrol, 1¼ galls.

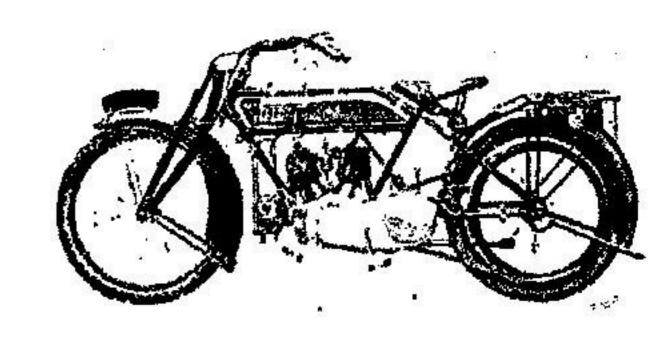
Price £63. Weight, 195 lb.

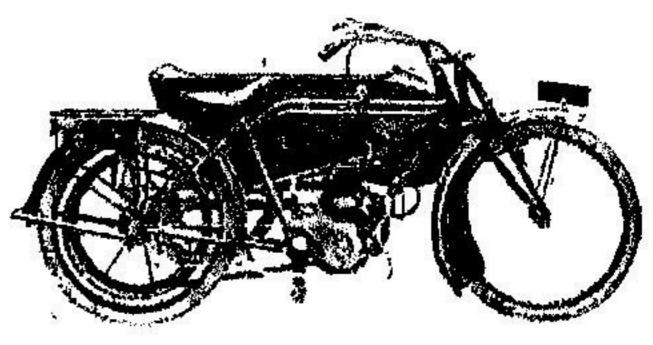
Other models.—21 h.p., 1-cyl., 2-stroke, 225 c.c., 2-speed, (36 153.; 41 h.p., 1-cyl., 600 c.c., 3-speed, (63.

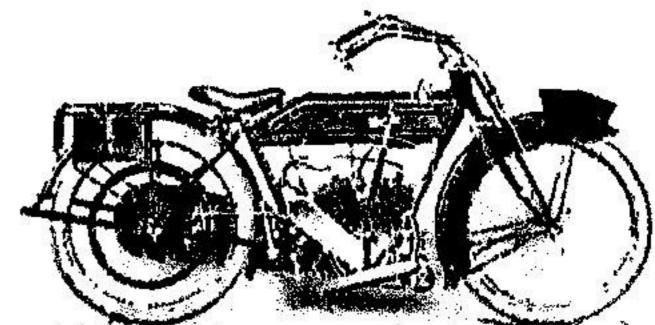
JAMES CYCLE CO.,

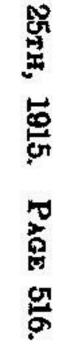












Price [25 198. Weight, 129 lb. Other models .- Same machine with clutch, £27 55.; single geareri, £19 195.

> DE LUXE MOTOR CO., 174, Corporation Street, Birmingham.

Despatch Rider.

2 h.p., T-cyl., 2-stroke, 64 × 67 mm., 210 c.c. Bricson magneta. Amac carburetter. Single geared. Belt, Jin. Height 25in. Clearance 71in. Wheelbase 46in. Dunlop tyres, 24 × 2in. Drip feed. Petrol, ri galls. Price £28 78. Weight, 89 lb.

Diamond.

DRENG, LTD.

Fern Road, Erdington, Birmingham.

21 h.p. Villiers, 1-cyl., 2-stroke, 70 × 70 mm., 260 C.C. E.I.C. or M.L. magneto. Amae carburetter. 2-speed countershaft gear. Chain and belt. Height 294in. Clearance 41in. Wheelhase 50in. Ayon tyres, 26 × 21n. Drip feed. Petrol, 11 galls. Price £38 178. Weight, 120 lb.

Other models.-Same machine, single geared, £31 tos.; 25 h.p. J.A.P., 1-cyl., 292 c.e., £40 195. D. F. AND M. ENGINEERING CO., LTD., Vane Street, Wolverhampton.

Dot.

2} h.p. J.A.P., 1-cyl., 70 × 76 mm., 292 c.c., s.s Dixie magneto. Amac carburctter. Albion 2-sp. countershaft goar. Chain and belt. Height 31hi. Clearance 41in. Hutchinson tyres, 25 × 2in. Wheelhase 52in. Hand pump and drip feed. Petrol, 11 galls. Weight, 134 lb.

Other models,-6 h.p. J.A.P., 2-cyl., 770 c.c., 4-speed; 8 h.p. J.A.P., 2-cyl., 976 e.c., 4-speed.

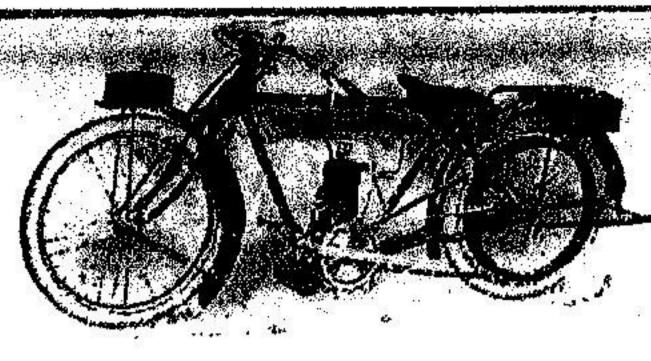
DOT MOTORS, 38, Ellesmore Street, Huhne, Manchester.

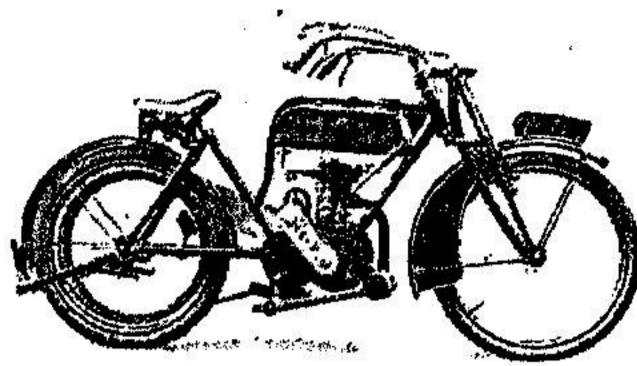
Douglas.

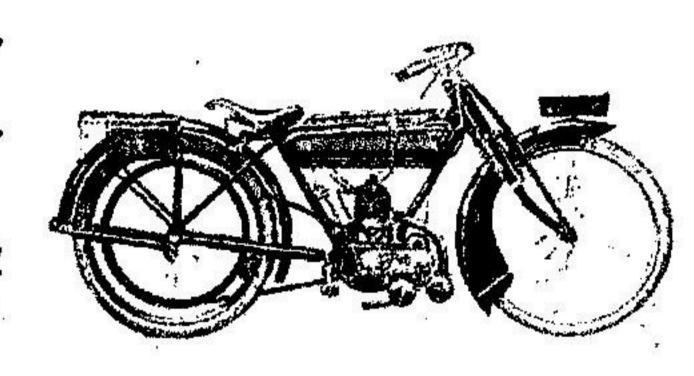
27 h.p. 2-cyl. (180°), 60.5 × 00 mma., 345 c.c., s.s. Poughs Amae carburetter. Douglas 3-sp. countershait gear. Chain and belt. Height 29in. Clearance 6)in. Wheelbase 53in. Hutchinson tyres, 26 a zlin. Hand pump and drip feed.

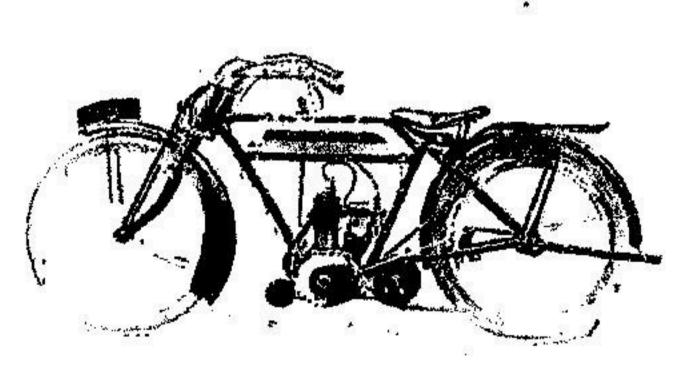
Price (56 tas. Weight, 175 lb. Other models.—Same machine without clutch, £52 8s.; ditto, 2-speed, £50 8s.; 31 h.p., 2-cyl. (180°), 592 c.c., 3-speed countershall, (60 185.; with sidecar, £80 17s.; Douglas spring trame, as abovo.

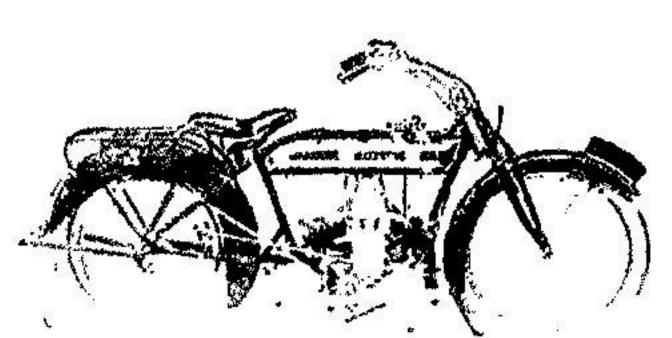
> DOUGLAS BROS., Kingswood, Bristol.











and the Dunkleys and the

28 h.p. Peco, r-cyl., 2-stroke, 75 × 79 mm., 349 c.c. B.I.C. magneto. Amac carbonetter. 2-speed countershaft gear. Chain and belt. Hutchinson tyres, 26 x 21in. Hand pump and drip teed. Petrol, 11 galls. Price £42; sidecar £10 10s. extra.

Other models .- 4 h.p. J.A.P., 1-cyl., 488 c.c., 4-speed, [63; 5 h.p., 2-cyl., 654 c.c., 4-speed, [70 75.; 6 h.p. J.A.P., 2-cyl., 770 c.c., 4-speed, £78 155.

DUNKLEYS, LTD., Jamaica Row, Birmingham.

Edmund.

2½ h.p. J.A.P., 1-cyl., 70 × 76 mm., 292 c.c., 5.r. E.I.C. magneto. Amac carburetter. Enfield 2-speed countershaft gear. Chain. Height 28in. Clearance 44in. Wheelbase 52in. Hutchiason tyres, 26 v 2in. Hand pump and drip feed. Petrol, 14 galls. Spring frame. Price £44 28. Weight, r48 lb.

Other model .- Same machine with 27 h.p. 2-stroke Peco.

C. EDMUND AND CO., Crane Bank, Chester.

Enfield.

3 h.p., 2-cyl. (60°), 60 × 75 mm., 425 c.c., overhead Thomson-Bennett magneto. Amac carburetter.

Enfield a-speed countershaft gear. Chain. Height 30in. Clearance Aliu. Wheelbase 55in. Paimer tyres, 26 × 21in. Mechanical pump. Petrol, 11 galls.

Price £52 105. Weight, 182 lh. Other models.—2] h.p., r-cyl., 2-stroke, 225 c.c., 2-speed, £42; 6 h.p., J.A.P., 2-cyl., 770 c.c., with sidecar, £89 15s.; with Lucas dynamo set, £105.
ENFIELD CYCLE CO.,
Redditch.

Excelsior.

29 h.p., 1 cyl., 2-stroke, 75 × 79 mm., 319 c.c. Ericson mag. Senspray or Amac carb. Excelsior 2-speed countershaft gear, Chain. Height 3rin. Clearance 4in. Wheelbase 53in. Dunlop or Palmer tyres, 26 × 21iu. Hand pump and drip teed. Petrol, r gall. Price £44 28. Weight 178 lb.

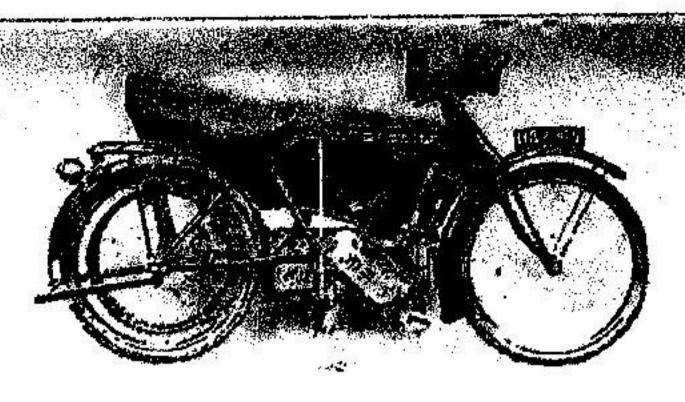
Other models. - 2} h.p., r cyl., z-stroke, 210 c.c. £30 16s.; 3} h.p., i cyl., 499 c.c., 3-speed hub, £56 14s.; 4£ h.p., i cyl., 650 c.c., 3-speed counter-shaft, £60 18s.; 5-6 h.p., i cyl., 800 c.c., 3-speed countershuft, £71 8s.; S h.p., 2 cyls., 976 c.c., 3-speed countershaft, £78 15s.

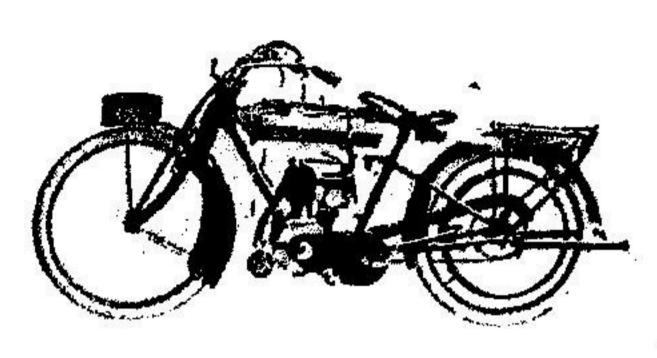
BAYLISS, THOMAS, AND CO., Excelsior Works, Coventry.

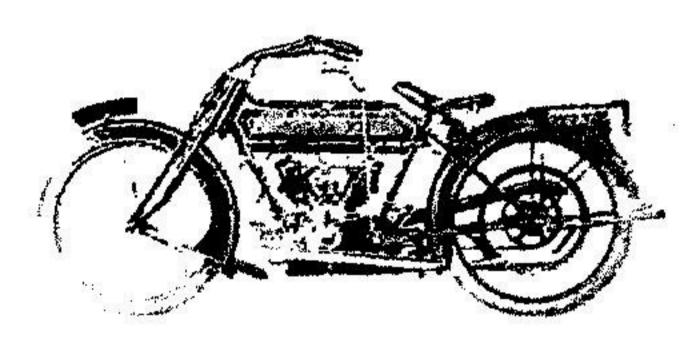
Excelsior (American).

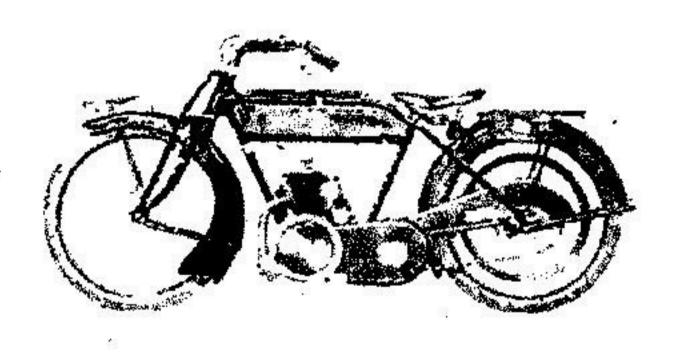
7 h.p., 2-cyl., 84 × 89 mm., 936 c.c., overhead inlets. Bosch magneto. Schehler carburetter. Excelsion 3-speed countershaft gear. Chain. Height 31in. Clearance 45in. Wheelbase 58in. Firestone tyres, 28 × 3in. Mechanical pump. Petrol, 2 galls.

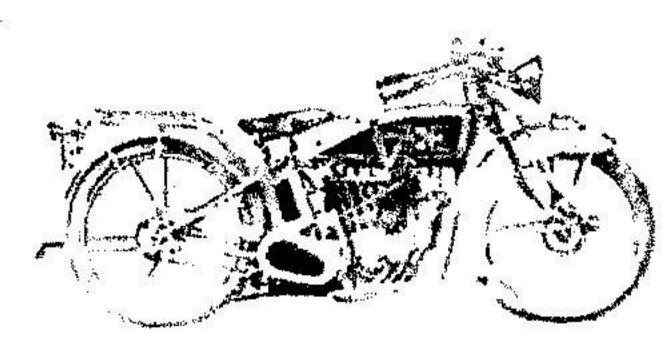
HARRIS AND SONS, 10, Great Chapel Street, Oxford Street, London, W.











Bianchi.

3½ h.p., r-cyl., 75 × 112 mm., 495 c.c., s.s. Besch magneto. B. and B. carburetter. Bianchi 3-speed countershaft gear. Firelli tyres, co x 2]in. Drip feed (Enois). Petrol, 11 galls. Price £82 ros. Weight, 210 lb. BIANCHI MOTORS, LTD., 26, St. James's Street, London, W.

Blackburne.

3½ h.p., 1-cyl., 85 × 88 mm., 499 c.c., s.s., ontside Gywheel. Splitdori magneto. B. and B. carbaretter. Sturmey-Archer 3-speed countershaft gear. Chain and belt (zin.). Wheelbase 57in. Height 28 in. Clearance 5in. Hutchinson tyres, 26 × 23in. Hand pump and drip feed. Petrol, 2 galls. Price 162. Weight, 212 lb.

Other model.—Same machine, single-genred,

BURNEY AND BLACKBURNE, LTD., Tongham, Surrey,

Bradbury.

A h.p., 1-cyl., 89 × 89 mm., 551 c.c., s.s.

Splitdorf magneto. B. and B. carburetter.

Bradbury 3-speed countershaft gear. Chain.

Height 31in. Clearance 5in. Wheelbase 53in.

Chucher, Dunlop, or Palmer tyres, 26 × 2½in. Hand pump and drip feed. Petrol, 11 galls. Price (60. Weight 280 lb.

Other roodels,-Same machine, single geared, £47: 2-speed, £55; 6 h.p., 2-cyl., 749.75 c.c., 3-speed, [73 10s.

BRADBURY AND CO., LTD., Wellington Works, Oldham.

Brough.

3 h.p., 2-cyl. (180°), 70 × 64.5 mm., 497 c.c., overhead valves. Thomson-Bennett magneto. Amac carburetter. Brough 2-sp. countershaft gear. Height 28 in. Clearance 7 in. Chain and belt. Wheelbase 53in. Dunlop tyres, 26 × 21m.

Hand pump and drip feed.

Petrol, 2 galls.

Price £63. Weight, 170 lb.

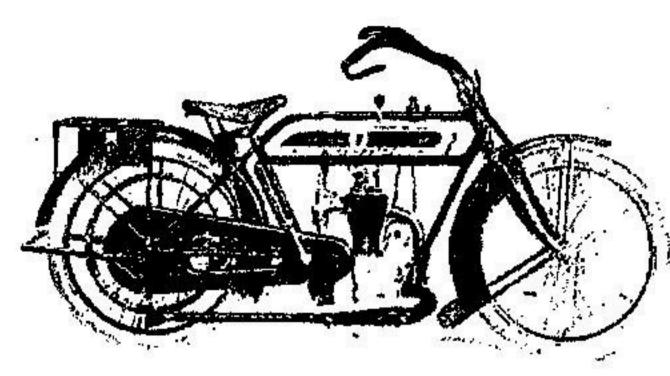
Other models.-31 h.p., 2-cyl. (180°), 497 c.c., Sturmey-Archer 3-speed countershaft, £66 31.; 5 h.p., 2-cyl. (180°), 685 c.c., 3-speed, £80. W. E. BROUGH AND CO., Basinrd, Nottingham.

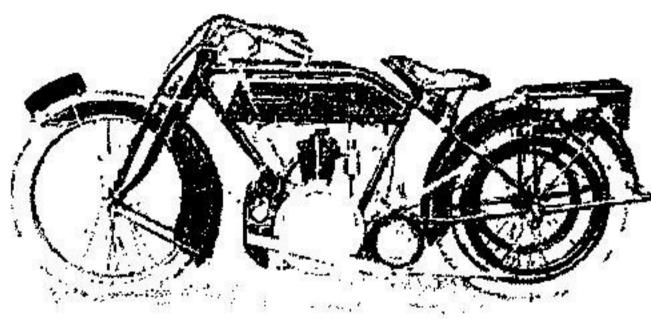
B.S.A.

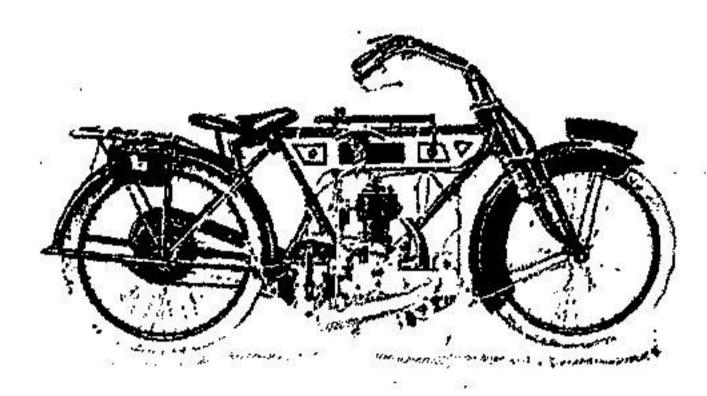
41 h.p., T.cyl., 85 > 98 mm., 556 c.c., 8.s. B.S.A. carburetter. B.S.A. 3-sp. countershaft gear. Chain and belt. Duniop or Paimer tyres, 26 × 23in. Semi-antomatic sight-leed drip. Petrol, 12 gals. Price (62.

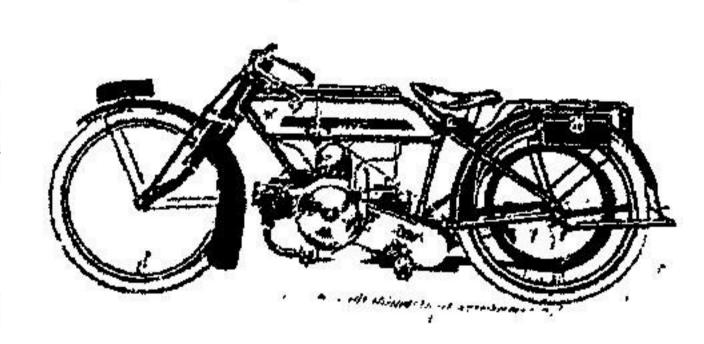
Other models,-Same machine, chain-driven, 664; 33 h.p., 1-cyl., 499 c.c., T.T. model, single

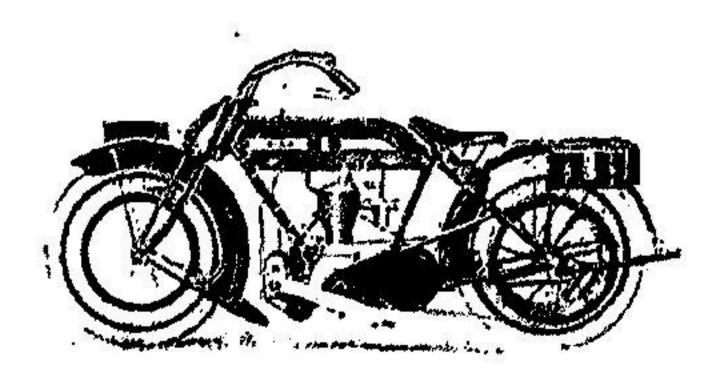
gear, (50 tos.
BIRMINGHAM SMALL ARMS CO., LTD.,
Small Heath, Birmingham.











Calthorpe.

4 h.p. J.A.P., 2-cyl. (50°), 70 × 64.5 mm., 496 c.c., Dixie magneto. Amac carburetter. Enfield 2-sp. countershaft gear. Chain Height 29 in. Clearance 4 in. Wheelbase 51 lin. Moseley tyres, 26 × 2}in. Hand pump and drip feed. Petrol, 11 galls. Price, with sidecar, £69. Weight, 200 lb.

Other models .- 2 b.p., 1-cyl., 2-stroke, 245 c.c., 2-speed, £31 75.; single geared, £27 14s. 6d.; 2\frac{1}{2} h.p. J.A.P., 292 c.c., Enfield 2-speed, £36 15s.; single geared, £30 15s.; Ladies' machines.

CALTHORPE MOTOR CYCLE CO.,

Barn Street, Birmingham.

Campion.

8 h.p. J.A.P., 2-cyl. (50°), 85.5 × 85 mm., 976 c.c. Dixio magneto. B. and B. carburetter. Jardine 4-sp. countershaft gear. Chain and belt. Clearance 4 lin.

Dunlop tyres, 650 × 65 mm.

Hand pump and drip feed. Petrol, 2 galls. Price (B2.

Other models .-- 4 h.p., r-cyl., 488 c.c., Sturmey-Archer 3-speed countershaft, (67; 23 h.p., 2-str., 269 c.c., 2-speed, (38; single geared, (31; 6 h.p., 2-cyl., 770 c.c., 4-speed, (80.

CAMPION CYCLE CO., LTD., Robin Hood Street, Nottingham.

Chater-Lea.

8 h.p., 2-cyl., 85 × 85 mm., 964 c.c., s.s. B. and B. carboretter. Chater-Lea 3-speed countershaft gear. Clearance 53in. Wheelbase 54in. Chain. Tyres, 650 x 65 mm. Petrol, 2 galls. Drip feed.

Price (B2 13s. gd. Weight, 285 lb. Other model.—22 h.p., 1-cyl., 2-stroke, 269 c.c. 2-speed countershaft, £38 6s. 6d. CHATER-LEA, LTD.,

74-84, Banner Street, Golden Lane, E.C.

Connaught.

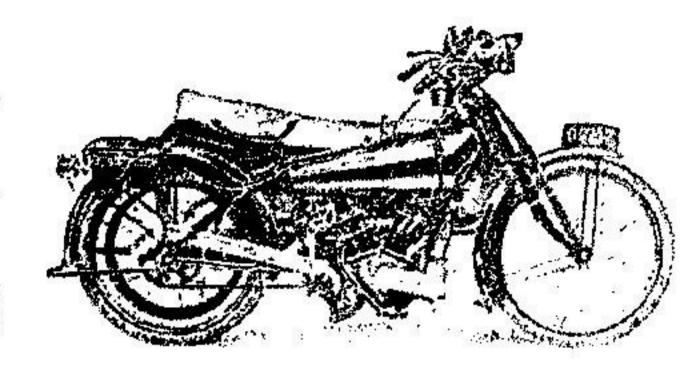
2½ h.p., 1-cyl., 2-stroke, 73 × 70 mm., 293 c.c. E.I.C. magneto. Amae carburetter. Single geared. Belt, Jin. Pleight 30in. Clearance 5in. Dunlop tyres, 26 × 201. Petrol, 1 gall. Petroil. Price £36 178.

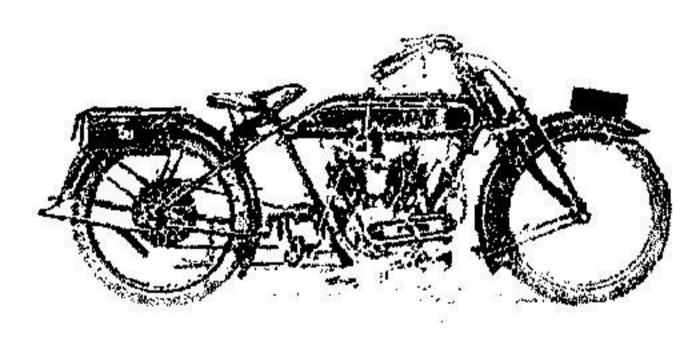
Other models,-Same machine, 2-speed counters shaft, [41 16s.; with clutch, [45 2s.; miniature model, 293 c.c., [28 17s] 6d.; with 2-speed, [6e 6s. BORDESLEY ENGINEERING CO., LTD. New Bond Street, Birmingham.

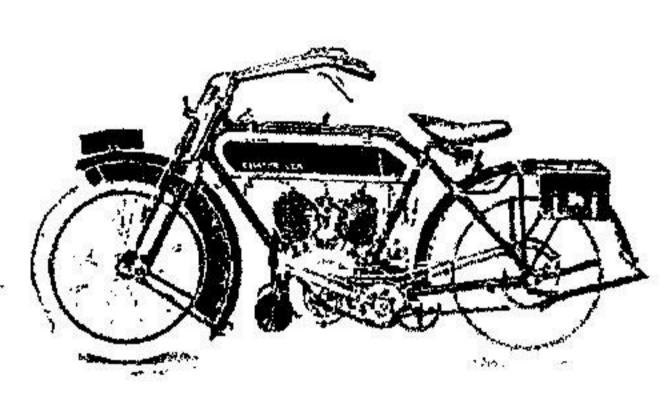
Coventry Eagle.

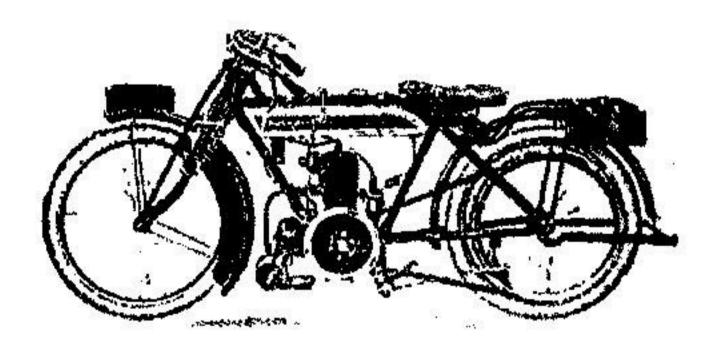
5-6 h.p. Abingdon, 2-cyl. (50°), 67 × 95 mm., · 670 C.C., 8.S. Amac or Senspray carburetter. Sturmey-Archer 3-speed countershaft gear. Chain and belt, rin. Height zoin. Dunlep tyres, 26 × 23in. Drip feed. Petrol, 2 galls, Weight, 175lb.

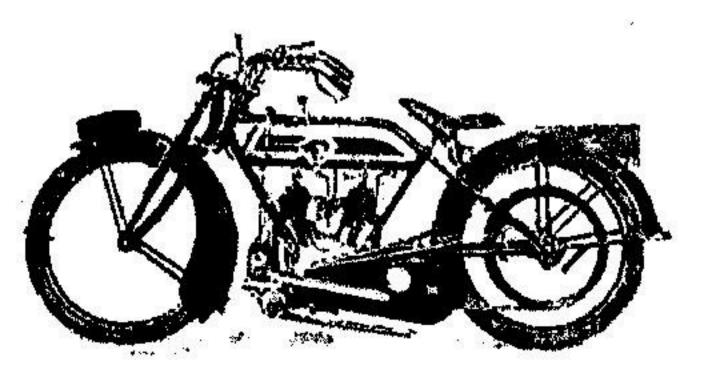
Other models .- 2; h.p. Villiers, r-cyl., 2-stroke 269 r.c.; 21 h.p. J.A.P., 1-cyl., 292 c.e.; 31 h.p. Abinudon, 1-cyl., 199 c.c. COVENTRY EAGLE CYCLE AND MOTOR CO., Folcabill Road, Coventry.







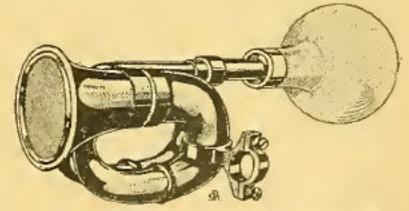




Second-hand Prices.

We give below the average prices of the various second-hand models offered for sale in the last issue of *The Motor Cycle*, and also the average prices for the last eight weeks. The prices quoted may be regarded as their standard value.

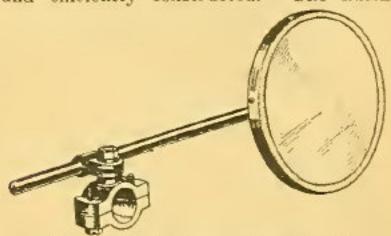
			2000			Last	Average
Make.		Veer.		H.P.			for past
100 500 500	-						8 weeks.
110		****	2				
A.J.S		1914	6	3-sp. sidecar			£75
· · · · ·		1914	27	3-speed			£43
Ariel		1913	6	3-sp. sidecar		£55	£37
Bat		1914	31	3-speed		£45	£41
Bradbury .		1913	0	2-sp. sidecar		£53	650
B.S.A		1911	6	3-sp. sidecar		£30	£61
39		1914	+	3-sp. sidecar		F01	655
Chater-Lea	•	1914	8	3-speed		£40	647
Clyno		1914	6	3-sp. sidecar		160	€72
Douglas	*	1913	-	3-sp. sidecar 2-sp. kick sta		£00	£55
		1914	24	2-sp. T.T		£44	£42
45		1914	24			£3/	£39
Enfield		1913	6	2-sp. sidecar	in a	£30	£36
17 ***	•	1914		2-speed			£65
2) ***	•	1913	6	2-sp. sidecar	• •	700	411
Humber	•	1913		3-speed		100	£53
		1913	33.51	T.T	• •	100	£36 £28
Indian	•	1914	7	2-sp. sidecor			163
10		1913	7	2-sp. sidecar		€55	£55
James		1014	41			£52	£53
Matchless .	3	1914	7	3-sp. sidecar	•	£72	£75
11 1		1913	7	3-sp. sidecar	•	152	£50
New Hudso	n	1914	6	3-sp. sidecar		£55 ·	€60
>3		1914	4	3-sp. sidecar		£52	£49
"		1913	i	3-speed		635	£35
N.U.T		1911	8	3-sp. sidecar		£60	£64
Premier		IOII	7	3-sp. sidecar		£75	€68
		1914	31	3-sp. sidecar		£55	£30
		1913	31			130	£39
P. and M		1914	35	2-sp. sidecar			£64
Rover		1914	CO CO CO	3-sp. sidecar			£52.
. 32		1913	33	3 sp. sidecar		£16	£44
Kudge		1914	5	Multi sidecar		£50	€36
n		1914	5	Multi		£10	£40
77 -7 -7 1		1913	5	Multi		£36	£39
Scott		1914	33	2-speed		£50	£47
		1913	34	2-sp. sidecar		€15	£44
Sunbeam .		1914	6			£7.4	£74
Triumph .		1914	4	3-sp. sidecar		£58	£34
77		1914	4.	3-speed			£44
11		1914	- 4	2-speed		€35	634
11		1913	31	3-sp. sidecar		£45	£46
Zanith '		1913	3 3 3 5	F.E		£35	£35
Zenith		1914		Gradua sidec		£55	4.37
,,		1914	4	Gradua sidec		£55	£34 £46 £35 £37 £55
,,		1914	6	Gradua		£45	£19
BS							



The British-made black-finished Hill bulb horn.

k

production of these minor necessities. Thus it is good to announce that we have recently received a horn and back glass from Messrs. Ernest H. Hill, Ltd., Beta Works, Sheffield. These are of black finish, and are very strongly and efficiently constructed. The finish



A mirror for motor cycles made by Ernest H. Hill, Ltd.

is excellent, and the provision made for their attachment to the machine is of ample dimensions.

THAT is the Fork

you should fit to your present mount or specify on your New Model if you would be absolutely assured of comfortable riding over every kind of road or track—the

DRUID MARK II.

(Vertical & Horizontal Action).

Don't leave the important question of Forks to chance, but specify the DRUID MARK II.—the ONLY Fork which totally absorbs WITHIN ITSELF every kind of shock to which the machine is liable.

