THE BOOK of the

6 H.P. ROYAL ENFIELD SIDE-CAR COMBINATION

"The Motor Cycle that is made like a Gun."

Published by

THE ENFIELD CYCLE CO., LTD.,

REDDITCH.

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THE 6 H.P. ROYAL ENFIELD SIDE-CAR COMBINATION.

A treatise dealing with the driving, general care, and maintenance of this model; with explanations of the elementary difficulties likely to be encountered in motor cycling, and

A PRICE LIST OF SPARE PARTS.

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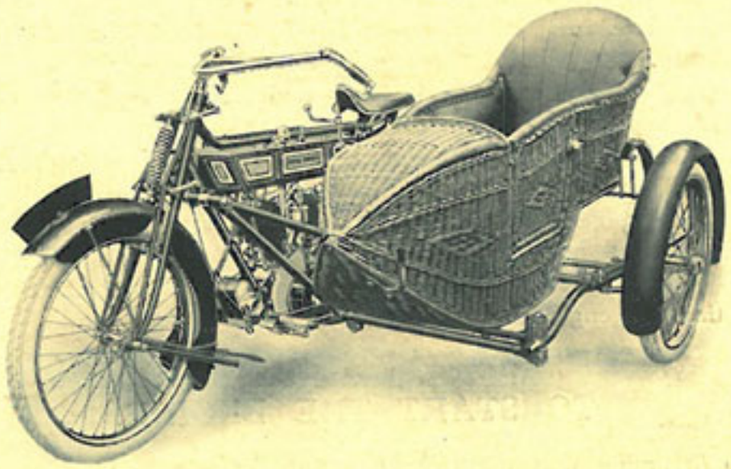


The 6 h.p. Royal Enfield Side-Car Combination.

The 6 h.p. Royal Enfield

fitted with the Enfield Patent Two-Speed and Free Engine Gear

PART I.

To make reference as easy as possible the paragraphs throughout this book are numbered consecutively. On page 22 will be found an index under which the various matters are arranged alphabetically.

1 The 6 h.p. Royal Enfield Model is fitted with a twin cylinder engine with a bore and stroke of 76 × 85 m/m. respectively, and a capacity of 770 c/c., the cylinders being set at an angle of 60 degrees. The valves are mechanically operated, and placed side by side. The ENFIELD PATENT TWO-SPEED and FREE ENGINE GEAR and CUSH DRIVE HUB are fitted. The reliability of this gear has been proved beyond question, many other manufacturers now fitting it under our patent rights. The transmission throughout is by roller chains.

2 The arrangement for silencing the exhaust include a long outlet pipe leading from the silencer, or expansion chamber, to the rear of the machine, the silencer being fitted underneath the right footboard.

3 The carburetter is the AMAC multiple jet type, handlebar controlled, and is fully described on page 12.

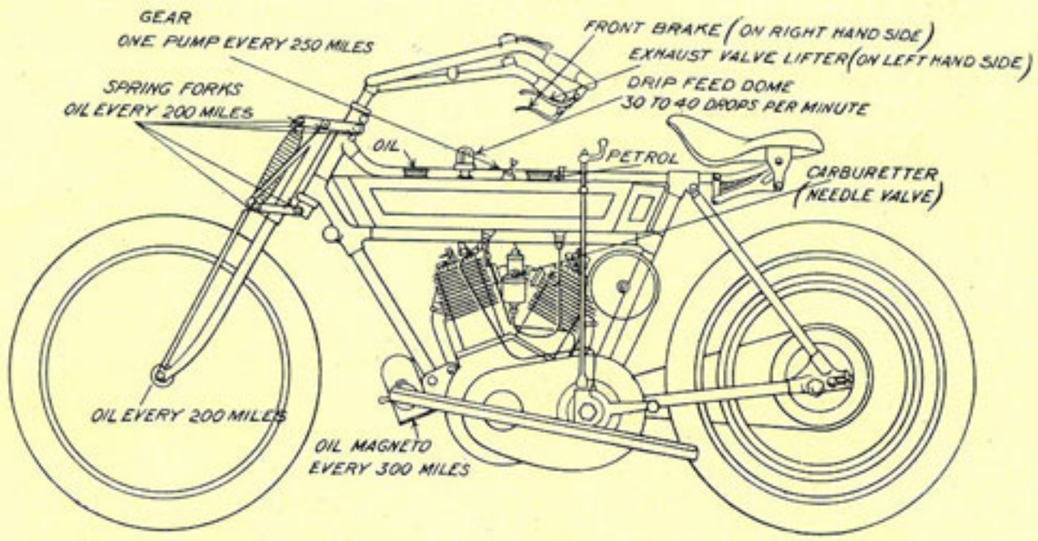
4 The magneto is the latest "ZEV" type, waterproof Bosch, fitted in front of the engine where it cannot possibly be affected by the heat generated at speed. A complete description of the magneto is given on pages 12 and 13.

In the following paragraph will be found full instructions on starting the engine:—

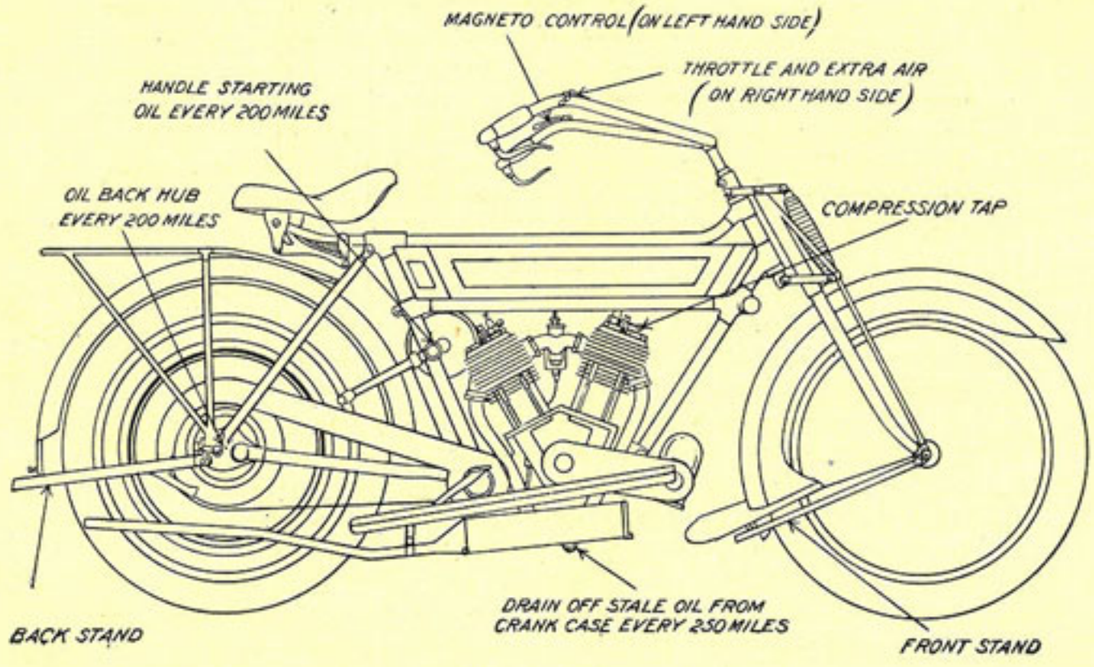
TO START THE ENGINE.

5 Assuming that the rider has little knowledge of motor matters, it is advisable first of all to study the diagrams on the opposite page

DIAGRAMS OF THE CONTROL LEVERS, IMPORTANT PARTS, AND LUBRICATING POINTS ON THE 6 H.P. ENFIELD MOTOR CYCLE.

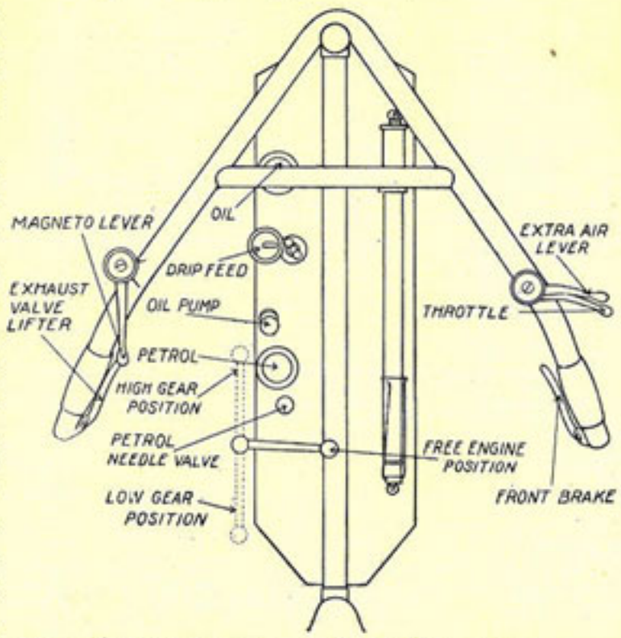


The above diagram shows the 6 h.p. Enfield from the gear (or side-car) side. The side-car is detached for convenience in illustrating the various parts.



The 6 h.p. Enfield viewed from the transmission side. Note the starting handle, which is held in a swivelling clip when not in use.

in order to become acquainted with the various controls and their positions on the machine. Having done this, fill up the petrol tank through the large glass-topped filler in the tank, and also fill up the oil tank through the filler at the front end. For the lubrication of our 6 h.p. model we strongly recommend Royal Enfield Motor Oil or Vacuum T.T. Oil, the latter especially for cold weather riding. Underneath the tank will be found a "two-way" tap through which the oil passes, and when this tap is pulled backwards the oil flows into the crank case and so to the engine. When pushed forward the oil is conveyed to the gear. First of all pull this tap backwards, draw the plunger (or pump handle) steadily upwards to its fullest extent, then push the plunger down and the oil will be forced through the oil pipe into the engine. For a machine in daily use one charge at the beginning of the day's ride is sufficient for starting up, but if the machine has been standing for any length of time, or if it is the first time the engine has been started since delivery from the factory, then it is advisable to give two full pumpfuls.



6 The next operation is to turn on the petrol by unscrewing the petrol needle valve on the top of the tank, which allows the petrol to flow into the carburetter. Depress the needle of the carburetter for a few seconds until the petrol overflows, and then open the throttle lever about half-way, keeping the extra air lever quite closed. The ignition lever should be advanced about two-thirds of its full opening. (It is very important not to advance the ignition to its fullest extent when starting up). Now, standing on the right hand side of the machine, lift the exhaust lever with the left hand and engage the starting handle with the spindle (be sure that the gear lever is in the free engine position), rotate quickly, and, whilst doing so, drop the exhaust lever. The engine should then fire immediately if the previous instructions have all been carefully carried out. With the engine running, unscrew the drip feed valve until the oil can be seen to drip about 40 drops per minute through the glass dome. The extra air lever should be opened, the ignition lever fully advanced, and, with the engine still running, the driver may mount the machine.

PICKING UP SPEED.

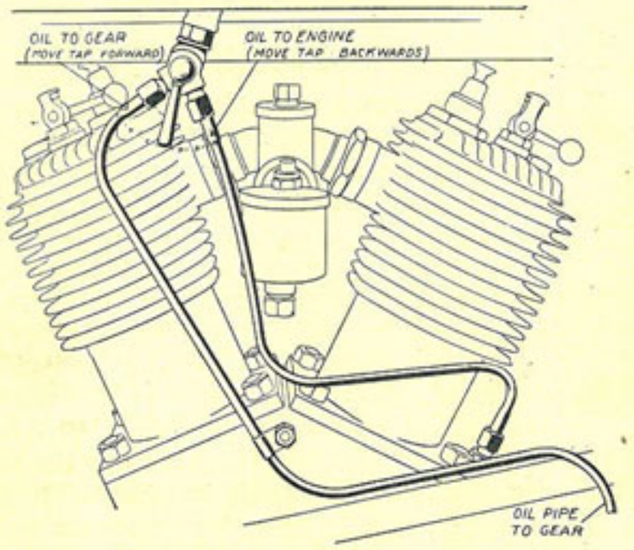
7 To get under weigh, draw the gear lever gently backwards and forwards towards the low gear position—not right back into full gear until the machine picks up speed. If the lever is drawn back too quickly it is possible that the engagement of the clutch will temporarily stop the engine, and the process of starting up will have to be gone through again. As soon as the machine picks up speed, the gear lever should be sharply pushed right across to the high gear position. The carburetter levers should be set, remembering that the carburetter should be given as much extra air as it will take without diminishing the speed. Control the speed of the machine by the throttle lever, and do not continually lift the exhaust lever, as doing so is liable to pit the valves. In riding through the traffic usually found in the centre of large towns, it is advisable to run on the low gear, and by occasionally bringing the gear lever into the free engine position, the machine will run slowly and steadily at three or four miles an hour.

DIFFICULTIES IN STARTING.

8 Providing all the instructions are systematically carried out, there should be no difficulty whatever in starting up. Of course when a machine has not been running for some length of time, or in exceptionally cold weather, it may occasionally fail to start without considerable persuasion. If the carburetter overflows readily, the petrol supply is all right, and by injecting a small quantity of petrol through the compression tap on the top of each cylinder, this may be sufficient to free the pistons and enable the engine to be started. If, however, this simple expedient does not overcome the trouble we would advise a careful examination of the whole machine from the "Fault-finding" Table given on page 21.

LUBRICATION.

9 In the paragraph (No. 5) on starting up the engine we have given full particulars as to setting the drip feed to drip about 40 drops per minute. For all ordinary riding this ensures sufficient oil reaching the engine, but when a very steep hill is reached, or if the roads are in a very heavy state, or any conditions prevail which call for greater power from the engine, it is advisable to supplement the supply of oil from the drip feed by an occasional half pumpful from the hand pump. Draw up the plunger of the pump (this can be easily done from the saddle and whilst the machine is in motion), turn the two-way tap towards the saddle and press the plunger steadily down, turning off the tap after time has been



allowed for the oil to travel along the pipe. If the drip feed does not appear to drip regularly, or sufficiently, do not fail to supplement it by these occasional half-pumpfuls of oil. Lubricating oils vary in viscosity, and in cold weather heavy oils will not always run through the drip feed sufficiently fast to effectively lubricate the engine.

10 It should be remembered that at all times it is far better to over-lubricate than to under-lubricate. The worst that can happen in the case of over-lubrication is an occasional sooted plug, and slight carbonisation, whilst the rider who persistently under-lubricates will quickly ruin any engine. After about every 250 miles the drain tap at the bottom of the crank case (see diagram on page 3) should be opened and the stale oil drained out. This is best done at the conclusion of a ride, when the oil inside the crank case is warm, and consequently flows more readily. After the oil has ceased to drip, close the tap and before proceeding to start the engine again, give two complete pumpfuls of oil with the hand pump in order to replenish the supply which has been drained out.

11 We advise the use of Royal Enfield Motor Oil, or failing this, Vacuum T.T. Oil, as being the most suitable for the 6 h.p. Royal Enfield Model. Whatever oil is used buy it in a sealed can, and do not allow anyone to fill up your oil tank from a large "no name" drum. Many garages are in the habit of supplying heavy oils in large casks, and charging the same price for them as the best grades of properly refined motor cycle oils.

12 The two-speed gear should be oiled about every 250 miles by pushing the two-way tap away from the rider, and giving a full charge of oil with the hand pump. The hubs of the wheels, the bars of the spring forks, and other parts of the machine should be periodically lubricated with a very light motor oil, or good cycle lubricating oil. The diagrams on page 3 give full instructions in regard to the lubrication of these parts.

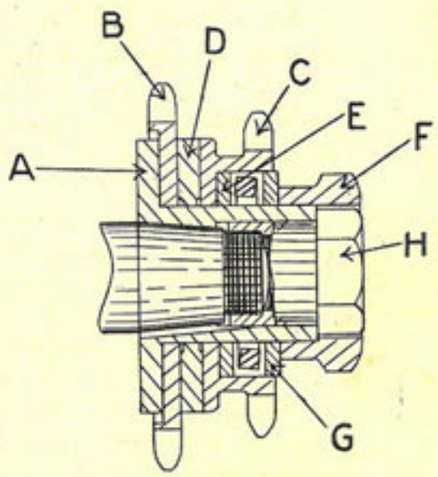
13 The magneto requires an occasional supply of oil through the oil chamber, but this must be special magneto oil as sold for the purpose, and must be given very sparingly. See also paragraph 40 dealing with the magneto.

14 The driving chain should be lubricated thoroughly about every 800 miles, as directed in the instructions given in paragraph 33 on chain transmission. It is advisable to run a little oil along it about every 200 miles.

THE SLIPPING CLUTCH.

15 The great feature of the chain transmission on the Enfield models is that the usual shakes and jars associated with chain drives are entirely eliminated. In the rear wheel the Cush Drive Hub prevents any snatching of the chain, and on the engine shaft the Enfield Patent Slipping Clutch reduces the engine shocks.

16 The accompanying diagram clearly shows the working of the clutch. A is a bush mounted on the engine shaft; B and C the high and low gear sprockets respectively; these can revolve on the bush A between the friction washers D and E and the flange A. The members D, E, and G are so arranged that they may slide, but not revolve, on the bush A. F is the adjusting nut. When properly adjusted, the sprockets "slip" between the friction washers just sufficiently to absorb the engine shocks. The action is perfectly simple, and the only adjustment which may be necessary is an occasional tightening of the nut F. The action of slipping locks this nut in position.



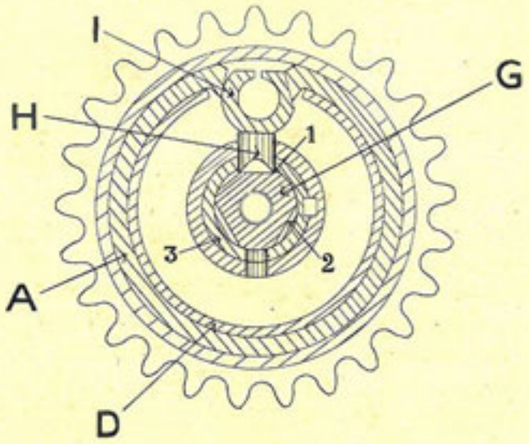
THE PATENT CUSH DRIVE.

17 The Patent Cush Drive takes up the Drive from the countershaft to the rear wheel with great flexibility and smoothness. This has a marked effect on the smooth running of the machine and minimises the wear on the rear tyre to a surprising degree.

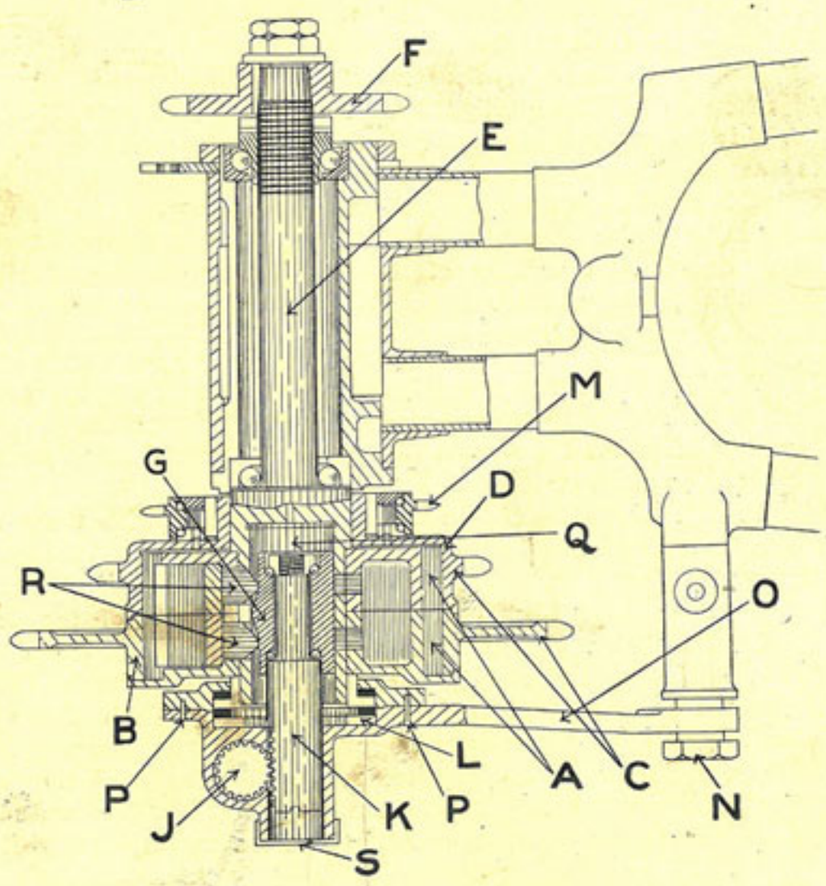
18 Briefly, the end of the hub cap is provided with three metal vanes, as is also the inside of the driving sprocket. On each side of the metal vanes on the hub cap is placed a block of solid rubber, and between these blocks the vanes on the inside of the driving sprocket fit. When in position there is a block of rubber and a metal vane alternately, the result being a complete equalisation of all shocks transmitted from the countershaft. This Cush Drive Hub is so simple that adjustment is seldom (if ever) necessary. The bearings of the wheel are adjusted in precisely the same way as on the wheel of an ordinary bicycle, the only parts likely to wear being the rubber blocks; these, however, will last a very lengthy period.

THE ENFIELD PATENT TWO-SPEED AND FREE ENGINE GEAR.

19 The Two-speed Gear is of the expanding clutch type, and is operated by a hand lever affixed to the tank in a position convenient to the driver's hand. There are no clutch or gear pedals whatever.



20 The power is transmitted by two roller chains (on the left hand side of the machine) from sprockets on the engine shaft, one for each gear, to a countershaft in the bottom bracket, which contains



the two-speed mechanism. The drive from the countershaft to the back wheel is by a roller chain on the right hand side of the machine. Midway between the two gears is the free engine position, which is passed through to engage either gear. The drive through both gears is direct, thus obviating that friction which is created when running through gear wheels. (The diagram on opposite page shows the two-speed and free engine mechanism).

20 Either gear is brought into action by expanding the hardened steel bands A into one of the drums B, also of hardened steel, and to which the chain wheels C are fixed; the change in gear ratio being effected by different sized sprockets on the engine shaft. The expanding bands A are carried on internal drums D; these take the drive and are keyed to the shaft E, which runs on ball bearings. The sprocket F is also keyed to E, and transmits the power to the back wheel.

21 The clutches are engaged by a pair of cams cut in the block G, sliding in either direction, according to which gear is required. The action of sliding the cam is to force one of the pegs H (or R) against a split roller I. This forces open the band A, and it engages with B, which is rotated by the engine.

22 The roller I being split allows the clutch to pick up very smoothly. The block G, containing the cam, is moved by a rack K and pinion J, operated by a vertical shaft and lever from the top of the tank. Three pairs of cams numbered 1, 2, 3 are cut in G, each being .005 inches higher than the one before it. Should any wear take place, it can be adjusted by engaging the next pair of cams, which is but the work of a few minutes. There is no thrust on the bearings when either in gear or free engine; thrust occurs only when the clutches are being engaged or released; then it is only momentary, and is taken up by a thrust bearing L.

23 The chains from the engine to the two-speed gear sprockets are adjusted by an eccentric in the bottom bracket, which carries the spindle E. The final driving chain from the countershaft sprocket to the rear wheel is adjusted in the same way as an ordinary bicycle chain, through the slotted fork ends.

24 The standard gear ratios fitted to the 6 h.p. Enfield are as follows: High Gear, 4.6 to 1; Low Gear, 8.3 to 1.

GEAR ADJUSTMENT.

25 The reliability of the Enfield Patent Two-speed Gear is almost proverbial, and the only adjustment which is likely to be necessary, under ordinary riding conditions, is the engagement of the second or third cam. The expanding clutches in the gear are operated by a set of three cams, which are cut in a sliding block marked 1 2

and 3 respectively, each cam being .005 inch higher than the one before it.

26 If there is a tendency of the gear to slip, first ascertain if it is due to the slipping clutch (see paragraph 16), and if the clutch is in proper adjustment, then it will be necessary to engage the next cam of the gear to that which is in operation.

27 Before making any adjustment, bring the two-speed gear lever into the low position as far as it will go. Remove the cap S and withdraw the pinion J, which engages with the teeth of the rack K. Unscrew the pin N, and after taking away the six screws P, the thrust bracket O will come away complete, and the adjustment can then be easily made. It is not necessary to remove any other parts, as the rack K is in one piece with the cam itself. Withdraw the block G and engage the next cam in alignment with the actuating pegs. If, when dismantling, it is found that No. 1 cam is in engagement, then No. 2 is the proper one to engage in its place. Assemble the gear by a reversal of the process described for dissembling it.

28 The pin N which secures the thrust bracket arm to the bottom bracket of the frame should not be screwed up too tightly. A certain amount of play is necessary to take the thrust when either gear is being engaged.

29 Sometimes when the slipping clutch needs a slight adjustment the trouble is erroneously attributed to the gear. In all cases, before making any adjustment to the two-speed gear, the nut F on the end of the slipping clutch should be tightened up, as this will probably remedy the trouble without further adjustment being necessary.

ADJUSTMENT OF GEAR CHAINS.

30 From the remarks given in paragraph 34 on the general care and adjustment of the chain drive, it will be seen that it is very necessary the chains should be run at a proper tension, neither too tight nor too slack. The two chains from the engine shaft sprockets to the countershaft sprockets are very simply adjusted by means of the eccentric in the bottom bracket. To take up any stretch which may develop in these chains proceed as follows:

31 Remove both nuts which retain the small countershaft sprocket (F, diagram on page 8), and take the sprocket itself off the spindle. On the end of the eccentric will be found a lock ring and adjusting quadrant. Loosen the lock ring, also the nut which holds the quadrant in position; the eccentric may then be adjusted by means of the quadrant. This adjustment should be very carefully made to ensure the chains not being over-tensioned. When replacing the small countershaft sprocket and nuts, do this carefully, and see that all the nuts, especially those retaining the sprocket, are tightened up securely.

CHAIN TRANSMISSION.

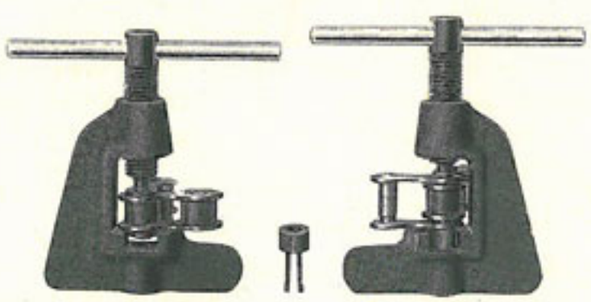
32 The system of chain transmission on all Royal Enfield motor cycles is absolutely perfect. It obviates the frequent breakages and adjustments which occur with belt-driven motor cycles, and, providing ordinary attention is given to the chains, they will run thousands of miles without trouble.

33 It is as necessary to lubricate the chains as the engine. One of the best lubricants is "Rangraphine." After about every 800 miles running the driving chain should be taken off the sprockets, washed thoroughly in petrol or paraffin to remove all grit and dirt, and then carefully dried. It should then be laid in the lubricant and warmed, so that it penetrates fully into the links. The chain should be left to cool, and afterwards, before replacing on the sprockets, any excess of lubricant on the outside should be carefully wiped away. It is not so much a question of the lubricant being on the outside of the chain, but what penetrates to the rollers and links that ensures perfect running.

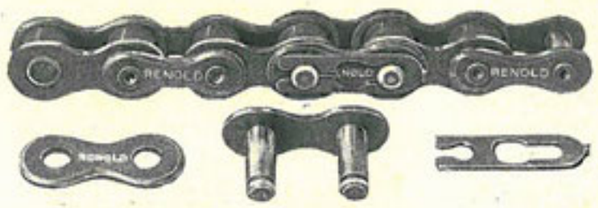
34 The chains should be kept tight to such an extent that when on the sprockets no part of the chain will lift up from its line more than ½in. If the chain is allowed to become too slack it is apt to "whip," which intensifies the wear and breaks the rollers. If, on the other hand, it is too tight, the pressure on the rollers is too great, and the whole chain is liable to be unduly strained.

35 The chain adjustment is effected in exactly the same way as an ordinary bicycle chain.

36 The two chains driving from the sprockets on the engine shaft to the two-speed mechanism are oiled direct, as previously explained, and there is no need to subject them to any special treatment, except when the machine is undergoing a thorough overhauling, which should be afforded it, say, after every five or six thousand miles. If it should be necessary at any time to remove a link from either of the chains, the special Hans Renold Stud Extractor should be used. The accompanying illustration shows the method of using the tool. On the left it is shown removing a rivet. The process consists in forcing the rivet head out of the upper side plate by turning the screw. Both rivets in the same link have to be forced out, care being necessary in placing the chain in the extractor, so that the under side plate can fall away between



the jaws of the tool. The process of replacing a rivet is carried out by the use of the spring pin shown in the centre of the illustration. This fits between the jaws of the tool, and has a recess (or hole) in its head to take the head of the rivet when forced into the holes in the lower side plate. It must then be rivetted with a light hammer. The quickest method of joining up a chain after an outer link has been removed is to use the spring clip joint shown in the accompanying illustration. When in position this spring clip is quite safe and secure, but it requires careful handling in fitting owing to the delicate tension of its spring.



37 The chain drive to the magneto requires a small quantity of oil about every 800 miles. See paragraph 13.

CARBURETTER.

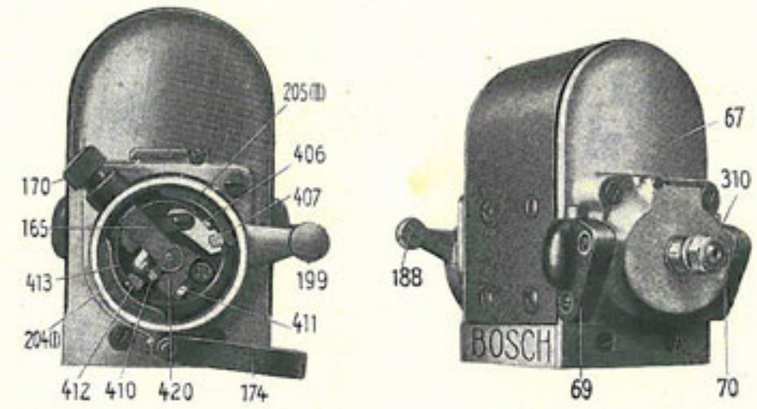
38 The carburetter is the well known AMAC MULTIPLE JET TYPE. A very full description of the carburettor is given in the booklet published by the makers, a copy of which we supply on application.

39 Briefly, the petrol is fed from the float chamber into the bottom of the mixing chamber, through a single jet, and then sprayed through a multiple sprayer into the mixing chamber proper. The petrol level always stands just below this multiple sprayer and above the single jet. The extra air and throttle valves shut off the mixture gradually but perfectly. The air valve is really a variable choke tube. As it closes it gradually reduces the area just above the sprayer, so that the air at this point always has the correct velocity necessary for the perfect atomisation of the petrol. This carburettor is semi-automatic in its practice, as there are practically only three positions in which the air lever operates, namely, fully closed when starting up, slightly open when running slowly, and fully open at speed.

MAGNETO.

40 The magneto fitted to the 6 h.p. Royal Enfield is the latest "ZEV" Type waterproof BOSCH. The complete enclosed construction of the magneto not only gives it a particularly neat appearance, but also materially increases the working efficiency, as dirt and water are prevented from getting on to any current conducting or other delicate parts. There are no bare contacts on the outside of the magneto.

41 It is impossible to give here a complete description of the construction and working of the magneto, but this is fully dealt with in the booklet issued free by the Bosch Magneto Company, Limited, and a copy of which we can supply on application.



42 The following are a few general remarks dealing with the care and maintenance of the magneto as fitted to the 6 h.p. Royal Enfield:

43 The most delicate part of the magneto is the contact breaker. In order to ascertain if the contact breaker works correctly, move flat spring (174) aside, remove end cap (173)* and see if the fastening screw (430) is well tightened up, also if the steel segments (204) and (205) respectively, as well as the two platinum screws (410) and (412) are securely fastened. Further, see if the contact lever (405) (406) has left the steel segments (204) (205), and whether this lever is deflected again when the fibre block glides over the segments (204) and (205) respectively, when the distance between the platinum contacts has to be 0·4 m/m. The gap can be regulated by means of the platinum screw (410). If this is in order and it is desired to examine the platinum screws of the contact breaker, same should be removed complete. For this purpose remove, first of all, timing lever (199), when the contact breaker will be completely exposed; now remove screw (430) by means of the magneto spanner and take out the contact breaker carefully. Ascertain if the platinum contacts (410) and (412) are clean, if necessary removing any oil or dirt. If they are worn unevenly—but only then—they should be filed flat again by means of a very smooth file. If the platinum screws are badly worn, so that even filing will not improve them, new platinum screws must be fitted. When replacing the contact breaker care has to be taken that it is in the correct position, which is determined by a key and keyway; also when replacing the timing lever (199) care must be taken that the gap provided in same comes over the stop screw mounted on the rear end plate.

*Some of the above parts are illustrated on page 35.

44 The flat spring (165), which establishes the connection between the magneto and the switch, must be kept clean where it makes contact with the screw (430).

45 Special attention is required to see that the contact lever (405) (406) is a free and easy fit, as the pivot of same cannot be lubricated, it being carried in a fibre bush. On new magnetos it may occasionally happen that owing to the swelling of the fibre brush, caused by change of temperature, the contact lever becomes a fixture. This can easily be rectified by slightly enlarging the bore of the fibre bush by means of a suitable reamer.

46 In contrast to the motor, the moving parts of which require very frequent lubrication, the magneto must only be lubricated occasionally. See paragraph 13.

47 Special care must be taken that the platinum points of the contact breaker are always free from oil, as otherwise it is impossible to make a good contact, and the production of the current from the magneto is considerably reduced.

DISMANTLING CYLINDERS.

48 First of all remove the sparking plugs, carburetter and exhaust pipe unions; the carburetter can be removed with the cables complete. Undo the four nuts which hold down each cylinder on the crank case. Possibly the cylinder will not lift straight off, and it is advisable to carefully work it backwards and forwards until it leaves the piston. The cylinder will come off more easily when the piston is at its lowest point. Each cylinder is lifted off in precisely the same way, and after they have been removed the inside of each piston should be filled with soft rag to prevent damage by the connecting rod. If carbon deposit is being scraped off the piston, it is also advisable to cover the top of the crank case with rag in order to prevent any of the deposit falling inside. There is no difficulty in dismantling the cylinders of the 6 h.p. Royal Enfield providing it is done very carefully, and that before removing any part one makes sure of the way it is attached, so that replacement of same may be properly done.

Grinding-in Valves.

49 Frequently, when an engine shows signs of gradually losing power, the cause is due to the accumulation of carbon deposit, and the necessity for grinding-in the valves. As a general thing, the exhaust valve requires grinding-in sooner than the inlet valve. Take out the valve-cap in the cylinder head, compress the valve spring and take out the flat cotter pin underneath, remove the valve and spring, scrape off any carbon deposit adhering to the valve, rub a little

emery paste and oil, or flour emery, on the valve, then place the valve back in position, insert a screwdriver through the cylinder head, placing it in the slot provided on the head of the valve. The valve should then be gently rotated on its seating, occasionally lifting it up and turning round to prevent rings or "scores" forming. The operation should be continued until both the surface of the valve and its seating are quite smooth and bright. There are several valve grinding appliances on the market, but these are more for workshop use, and the amateur will find the screwdriver process quite satisfactory.

Fitting New Valve.

50 The operation of fitting a new valve is very simple and only requires care. Take out the valve cap in the cylinder head, compress the spring and remove the flat cotter pin underneath, when the valve can be easily pushed up through the spring and withdrawn through the cylinder head. To fit a new valve this process is reversed.

Broken Valve Spring.

51 The instructions given above will be sufficient to enable a broken valve spring to be easily taken off and replaced with a new one.

Removing Carbon Deposit.

52 When an engine has been in use some considerable time, carbon deposit is bound to form on the piston and cylinder head. This is due usually to the road dust drawn in by suction to the engine through the air port in the carburetter and mixing with the lubricating oil. Using a cheap grade of oil will lead to carbonisation very quickly. The cylinders are dismantled exactly as described in paragraph 48 and the carbon deposit scraped off the piston with an old knife or a special scraper. For removing the deposit off the cylinder head a long-handled screwdriver is a most useful tool, or a long square file which has been softened and the end turned up makes an efficient scraper. Removing carbon deposit is a process which requires a considerable amount of time and patience, as the deposit is bound to have set very hard.

53 It will usually be found that the piston ring grooves need to be cleaned out also. Piston rings are extremely brittle, and must be removed with great care. The best plan is to get three or four strips of thin tin, each about half an inch wide. The ring should be removed gently from its groove, one of the pieces of tin inserted underneath it, then pull the ring away a little farther round, insert another piece and so on. When the ring is lifted right out, it is

an easy matter to work it up and over the top of the piston. The bottom ring should be removed first, and replaced last, the same process but reversed being used to get the rings back again into their grooves. The carbon deposit can be cleaned out of the grooves without removing the piston although it is advisable, as mentioned elsewhere, to place a large cloth round the connecting rod, and also inside the top of the crank case so that no deposit or other foreign matter enters it. After the deposit has been scraped off, the cylinder head, piston and piston ring grooves may be cleaned with a stiff-bristled brush dipped in paraffin. It is advisable, if paraffin is used, to wipe it all away before erecting the engine again.

Replacing Cylinders.

54 The cylinders are replaced by a reversal of the process described in paragraph 48 for dismantling them. Before putting the cylinder over the piston, carefully wipe both the cylinder walls and the piston surface and then smear them with oil. In tightening up the four bolts which hold the cylinder on to the crank case, first of all screw all four as tightly as possible with the fingers. Then give each bolt a half turn with the wrench alternately so that the tightening is done uniformly, otherwise the lugs are liable to be strained.

Taking up Stretch in Exhaust Lifter Cable.

55 The cable operating the exhaust valve lifter is sometimes found to stretch in use, especially if the machine has been controlled by the exhaust valve instead of by the throttle. The adjustment will be found at the crank case end of the cable. There are two nuts—the top one is the adjustment nut, the bottom the lock nut; the latter should be slacked before the adjustment is made and afterwards tightened up securely.

Valve Lifter Disorganised.

56 If any breakage should occur in the valve lifter mechanism, which makes it impossible to raise the exhaust valves by the lever on the handlebar, the machine may be started up by opening the compression taps. As soon as there is the slightest sign of an explosion in the cylinders, the taps should be closed.

Adjustment of Brakes.

57 We would impress upon all motor cyclists the advisability of keeping their brakes properly adjusted so as to be always ready for use in case of emergency. The adjustment of each brake will be readily seen and needs no lengthy description.

Lubricating Cycle Bearings.

58 It is highly important that the cycle parts should be regularly lubricated, as directed in the diagrams on page 3. A good brand of cycle lubricating oil is quite satisfactory for this purpose. The steering head of the motor cycle should be kept properly adjusted, and if there is any play or shake in it (which may be detected by firmly grasping the handlebar and pulling it upwards) the bolt through the handlebar clip should be loosened and the adjusting cone turned until the shake is taken up, afterwards tightening the bolt again. It is not advisable to tighten up the cone until the steering is at all stiff.

STOPPAGES—THEIR PROBABLE CAUSE.

59 Whenever the machine stops (either suddenly or gradually), and there is no noise emanating from the engine likely to give any clue to the cause, the first thing it is advisable to do is to see that there is a supply of petrol. Even experienced riders run out of petrol, and frequently overlook this necessary item. If the petrol supply has given out, and it is impossible to obtain any, endeavour to get a supply of paraffin. By lifting the front wheel of the machine what petrol is left in the tank will flow to the carburetter, and be sufficient to start the machine again, whilst when it is warmed up the paraffin will enable one to reach the nearest supply of petrol. When running on paraffin it will probably be found necessary to completely close the extra air lever, and in any case no high rate of speed should be attempted.

60 If there is plenty of petrol in the tank a rapid survey of the whole machine should be made in conjunction with the Fault-Finding Table on page 21. Some probable causes of stoppage are given below.

Sooted Plug.

Symptoms—Misfiring, that is, explosions in one or both cylinders not occurring regularly.

61 It is usually possible to discover the plug which is at fault by the heat of the cylinders, the one in which the misfiring has taken place being perceptibly cooler than the other. Take out the sparking plug with the adjustable spanner provided in the tool-kit, carefully clean the plug, either with paper or a cloth and a small quantity of petrol. When a plug is very badly "oiled up," some riders adopt the practice of filling the plug with a small quantity of petrol and then burning it out. See that the space between the central electrode and the outer points is right; there should be just

sufficient space between them to take the thickness of an average visiting card.

Petrol not reaching Carburetter.

Symptoms.—Misfiring; engine stopping frequently, then starting again after the machine has stood for a few minutes.

62 This may be due to the petrol supply having run out as mentioned above, or to some obstruction in the pipe. To take off the petrol pipe, unscrew the union nuts at each end of the pipe, and pass a piece of wire down it, or if it is a small obstruction, it may be blown clear with the mouth. If there is an ample supply of petrol in the tank, and the carburetter floods readily, there may be some obstruction in the channel leading from the float chamber to the jet. It may also be due to a choked jet.

Choked Carburetter Jet.

Symptoms.—Easily tested as when needle valve on the top of float chamber is tickled violently, the petrol will not drip from mixing chamber, although it will do so from the float chamber.

63 Detach the mixing chamber and take out jet. Clean the aperture very carefully so as not to enlarge the hole. A hair bristle or something similar is the safest thing to use, if this is obtainable. If not, the screw pin from the oil-can will answer the purpose if used carefully.

Air Lock in Petrol Supply.

Symptoms.—Engine usually stops after a few weak explosions.

64 This is caused by the air vent in the petrol filler cap being stopped up, so that as the petrol is drained off from the tank a vacuum is formed. Clean the air vent in the filler cap and blow through the filler hole.

Water in Carburetter or Tank.

Symptoms.—If only a little water has reached the petrol, the engine is subject to occasional misfiring, but if there is much water present, there will be continual misfiring and explosions in the silencer.

65 If it is due to rain, it is no use taking down the carburetter in the open unless the rain has stopped, as more water will enter by doing so. In some cases it is possible, if the water has only entered the carburetter, to turn off the petrol and run the engine "free" until the carburetter is emptied. If the water has entered the petrol tank there is nothing else to be done but to empty it and replace with a fresh supply of petrol. It is possible to test the presence of

water in petrol by pouring a little of the mixture into the hand, when the petrol will evaporate and the water remain.

Seized Engine Bearings.

Symptoms.—Chiefly preceded by engine "knocks," ultimately engine stopping, and on attempting to turn is stiff and probably immovable.

66 In cases of piston seizures, the trouble may be caused by the piston warping, although this is very rare. Ninety-nine per cent. of all engine seizures are due to under-lubrication. The obvious remedy is to increase the supply of oil, but if the seizure is a bad one inject a copious supply of paraffin through the plug holes, and endeavour to turn the engine round either with the starting handle or by pushing the machine with the exhaust lifter raised. After it has been loosened, drain out the paraffin through the drain tap in the bottom of the crank case, and inject a good supply of lubricating oil. After this treatment the trouble should be remedied, although it is advisable in most cases of seizure to have the engine dismantled as soon as possible in order to ascertain if any permanent trouble has resulted. If instructions on lubricating are carefully followed, engine seizures will never be experienced.

Over-Heating.

Symptoms.—Engine becomes noticeably hot, runs badly and "knocks" even on slight gradients.

67 Over-heating may be due to a variety of causes. In the case of a new machine it will usually be caused by under-lubrication, and is a preliminary to an engine seizure. If an engine has been driven "all out" for a considerable time this may account for it, and the remedy is to either stop and cool down, or drive the engine slowly for a few miles, giving it all the extra air it will take. Driving on too rich a mixture is another cause—the remedy for which is obvious. In the case of an engine which has been running several thousand miles, the trouble may be excessive carbon deposit. The remedy in such a case is to dismantle the cylinders and scrape off the deposit as directed in paragraph 52.

Ignition Troubles.

Symptoms.—No spark at plug.

68 Fortunately, present-day magnetos are so uniformly reliable that trouble is seldom experienced with them. Occasionally after a long ride in heavy rain short circuiting may be caused by the plugs or magneto terminals getting wet. Similarly oil or grease on the magneto terminals will lead to the same effect. The carbon brushes may also

get dirty, which will cause stoppage of the machine. Carbon brushes should be handled very gently, and their paths should be cleaned by rolling a piece of soft rag sufficiently small in size to go through the carbon brush aperture. Dip the end in petrol and insert it, meanwhile rotating the magneto. It is advisable, before attempting to remedy any trouble arising from the magneto, to carefully study the description given on pages 12 and 13. The magneto should not be dismantled except by someone thoroughly acquainted with it.

Care of the Side-Car.

69 Care of the side-car calls for little comment. The side-car wheel hub is adjusted in precisely the same way as the front wheel of the motor cycle. It is very necessary, for satisfactory running, to keep the side-car in perfect alignment with the motor cycle. Have this tested by a good repairer if you have any doubt as to its being perfectly in line, both horizontally and vertically. The coach-built side-car body should never be violently rubbed to remove mud and dirt. An old sponge or soft rag dipped in warm water (not hot) will remove any accumulation of mud and grease, and the body can then be dried with a soft rag. A little furniture polish will add to the effect.

DONT'S.

Don't forget to keep all nuts on the machine and engine perfectly tight. Vibration is apt to loosen them.

Don't forget to lubricate the cycle bearings in accordance with the instructions given on the lubrication chart.

Don't run the engine in the "free" position any longer than is absolutely necessary. Running without any load, and without a cooling current of air on the cylinders, is bad for any engine.

Don't forget to see that your side-car is kept in proper alignment with the motor cycle.

Don't run the tyres insufficiently inflated, neither is it policy to inflate them too hard. The front wheel tyre should be inflated to considerably less pressure than the back.

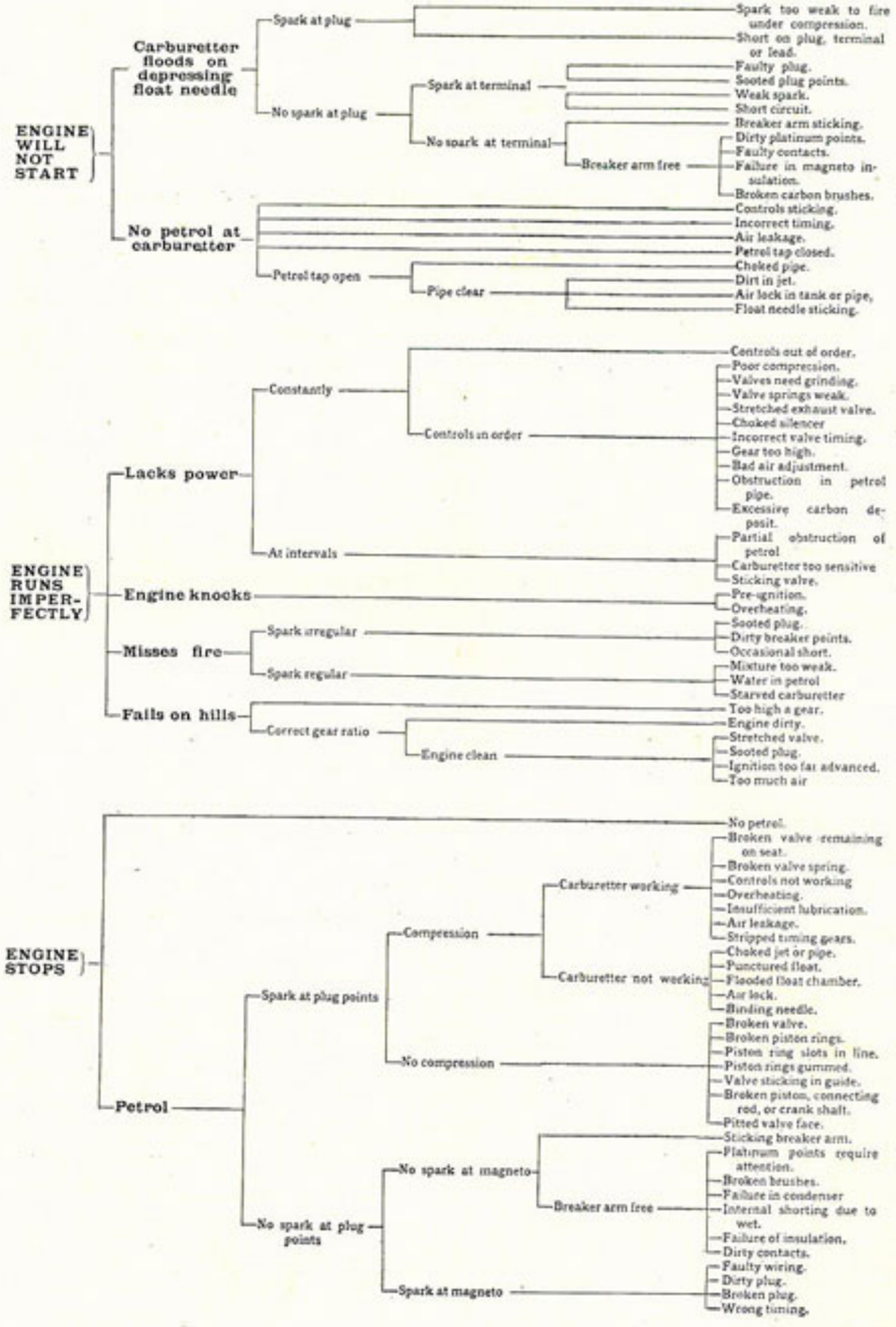
Don't forget to give the engine as much extra air through the carburetter as it will take; it keeps the engine cool and lessens petrol consumption.

Don't forget to use good lubricating oil. Cheap oils quickly cause carbonisation and excessive wear on the moving parts.

Don't forget to supplement the drip feed lubricator with regular applications of the hand pump as directed.

Don't attempt to make any adjustments or do anything to the machine unless you are sure it is necessary, and without a clear understanding of what you are going to do.

FAULT-FINDING TABLE.



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Index.

The figures in this Index refer to the paragraph numbers in the book, and NOT *to the page numbers-unless otherwise stated.*

3RD EDITION. PART II.

LIST OF

Spare and Replacement Parts

for the

6 h.p. Royal Enfield.

List of Spare and Replacement Parts for the 6 h.p. Royal Enfield.

The prices in the following list of spare parts are STRICTLY NET CASH WITH ORDER, or on receipt of PRO-FORMA INVOICE. Repairs and Sundries items cannot be booked. Prices do not include cost of carriage or postage.

Any part or complete motor cycle sent for repair should be consigned CARRIAGE PAID and the sender's name and address should be given in full on the address tally.

Full instructions regarding the necessary repairs to be done, with advice as to the mode of despatch of the machine (or part), should be posted the same day. See also page 56.

When forwarding motor cycles for repair it is advisable to remove all accessories and easily detached fittings, such as lamp, horn, tool-bags, etc. Besides facilitating the work of repair, it will also prevent any loss during transit.

Order all parts by the name of the article and the NUMBER GIVEN IN THE FIRST COLUMN, also state the number of the engine or machine for which they are intended. The engine number will be found stamped on the crank case and the machine number on the front lug of bicycle which connects to the side-car. It is also NECESSARY to give the date when machine was purchased and the name of the Agent through whom it was bought.

This edition cancels all previous lists and prices of Spare and Replacement Parts for the 6 h.p. Royal Enfield Model.

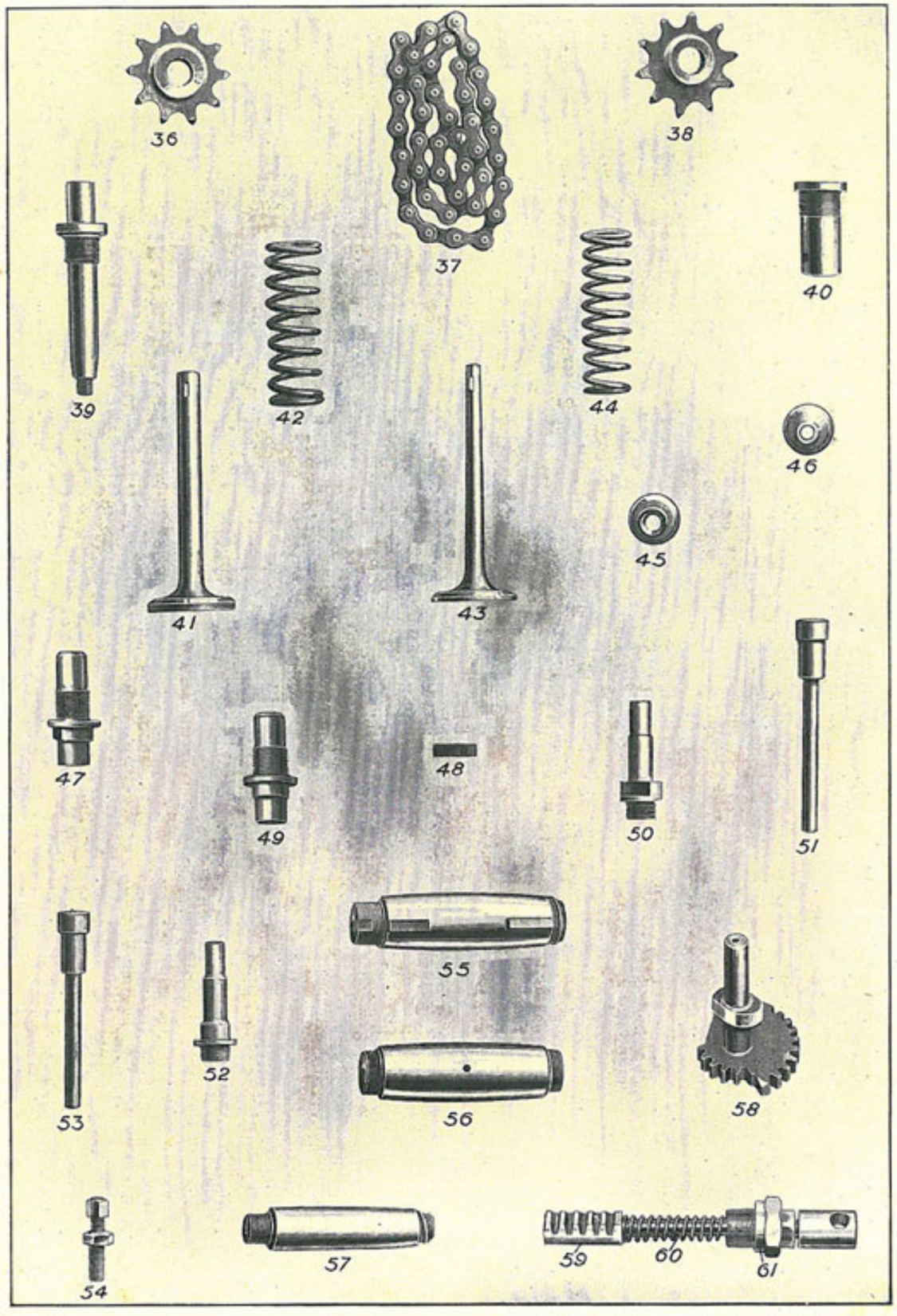
ENGINE PARTS.

For illustrations see two following pages.

Quote this No. and Name of part when ordering.	These Nos. are for Works' use only. Do not quote them.	Description.	Price. £ s. d.
A 1	J 1	Cylinder (rear)	2 0 0
A 2	J 2	,, (front)	2 0 0
A 3	J 3	Magneto chain drive cover	– 8 6
A 4	J 4	Timing case cover	2 0 0
A 5	J 5	Crank case (driving side)	1 17 6
A 6	J 6	,, (timing side)	2 10 0
A 7	J 7	Flywheel (timing side)...	– 18 6
A 8	J 8	,, (driving side)	– 18 6
A 9	J 9	Piston (including gudgeon pin) ..	– 18 0
A10	J10	Gudgeon pin only	– 3 0
A11	J11	Piston ring	– 2 0
A12	J12	Connecting rod (forked end)	1 0 0
A13	J13	,, (plain end)	– 12 9
A14	J14	Rockers exhaust (rear cylinder) ...	– 5 0
A15	J15	,, (front cylinder) ...	– 5 0
A16	J16	Rockers inlet (rear cylinder)	– 5 0
A17	J17	,, (front cylinder)	– 5 0
A18	J18	Exhaust and inlet cam wheel ...	– 16 0
A19	J19	Timing wheel	– 3 0
A20	J20	Decompressor cam	– 4 0
A21	J21	Valve cap (for sparking plug) ...	– 2 6
A22	J22	,, ...	– 2 6
A23	J23	Induction and exhaust pipe nut ...	– 1 6
A24	J24	Roller retaining washer	– 2 9
A25	J25	Compression tap	– 2 6
A26	J26	Big end bush (connecting rod) ...	– 5 6
A27	J27	Roller for retaining washer	– – 8
A28	J28	Oil union, less nut	– – 8
A29	J29	,, with nut	– 1 0
A30	J30	Crank case bush (driving side) ...	– 3 0
A31	J31	,, ,, (timing side) ...	– 3 0
A32	J32	Gudgeon pin bush	– 2 6
A33	J33	Bush for crank case (timing side), large bush	– 2 6
A34	J34	,, ,, ,, small bush	– 1 0

ENGINE PARTS—continued.

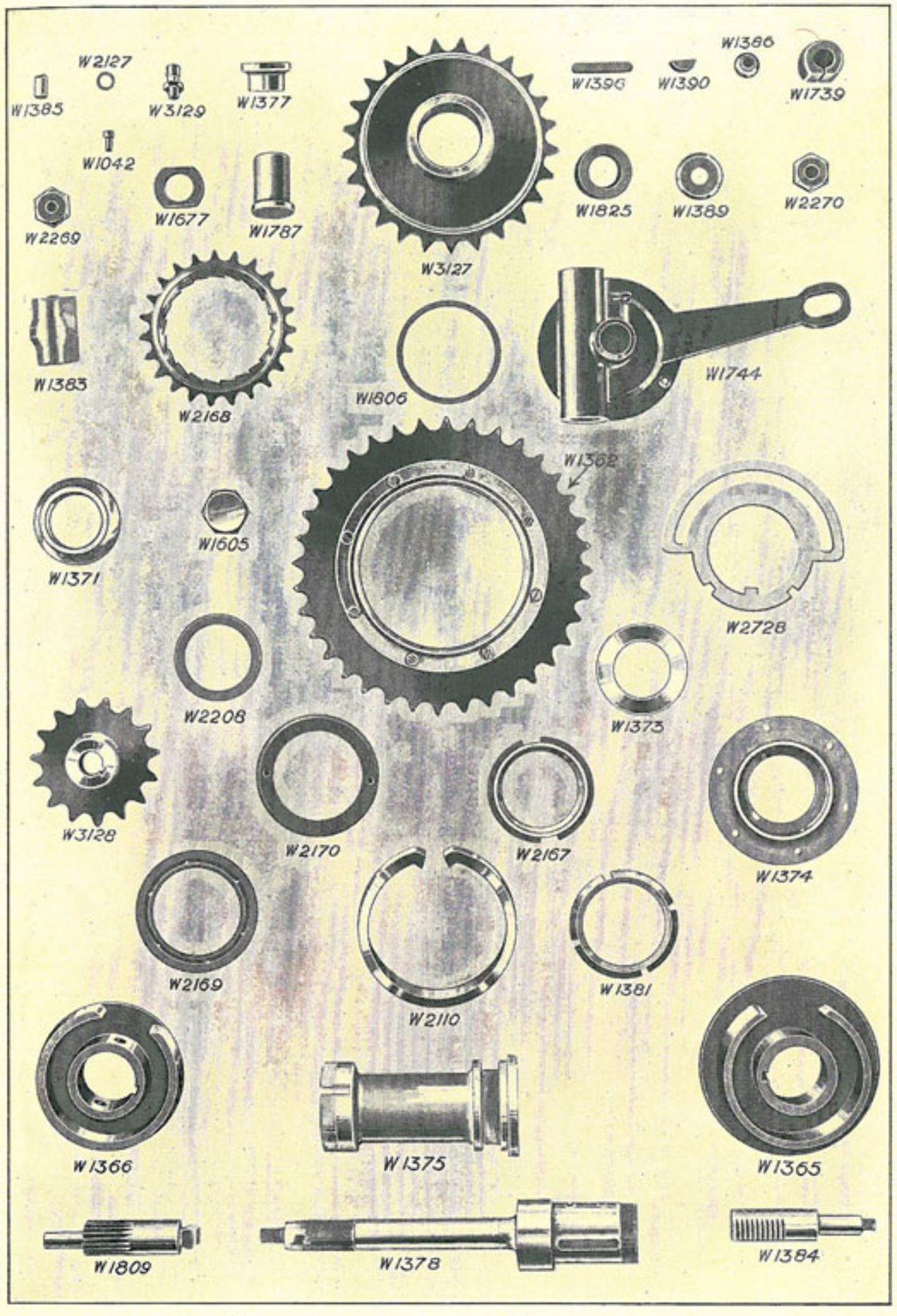
Quote this No. and name of part when ordering.	These Nos. are for Works' use only. Do not quote them.	Description.	Price. £ s. d.
A35	J36	Magneto driving sprocket for engine shaft	– 3 6
A36	J37	Magneto driving chain	– 3 6
A37	J38	,, sprocket for magneto shaft	– 3 6
A38	J39	Spindle for inlet and exhaust cam wheel	– 3 9
A39	J40	Bush for above spindle	– 2 6
A40	J41	Exhaust valve	– 4 8
A41	J42	,, spring	– – 4
A42	J43	Inlet valve	– 4 0
A43	J44	,, spring	– – 4
A44	J45	Exhaust spring collar	– – 4
A45	J46	Inlet spring collar	– – 4
A46	J47	Exhaust valve guide	– 3 0
A47	J48	Valve cotter	– – 2
A48	J49	Inlet valve guide	– 3 0
A49	J50	Guide for inlet tappet	– 2 6
A50	J51	Inlet tappet	– 2 6
A51	J52	Guide for exhaust tappet	– 2 6
A52	J53	Exhaust tappet	– 2 6
A53	J54	Decompressor adjuster	– – 9
A54	J55	Main shaft (driving side)	– 4 6
A55	J56	Crank pin	– 4 6
A56	J57	Main shaft (timing side)	– 4 6
A57	J58	Decompressor pinion	– 9 6
A58	J59	,, rack with spindle ...	– 3 6
A59	J60	,, spring	– – –
A60	J61	,, rack guide	– 1 9



See opposite page for description and prices.

TWO-SPEED GEAR PARTS.

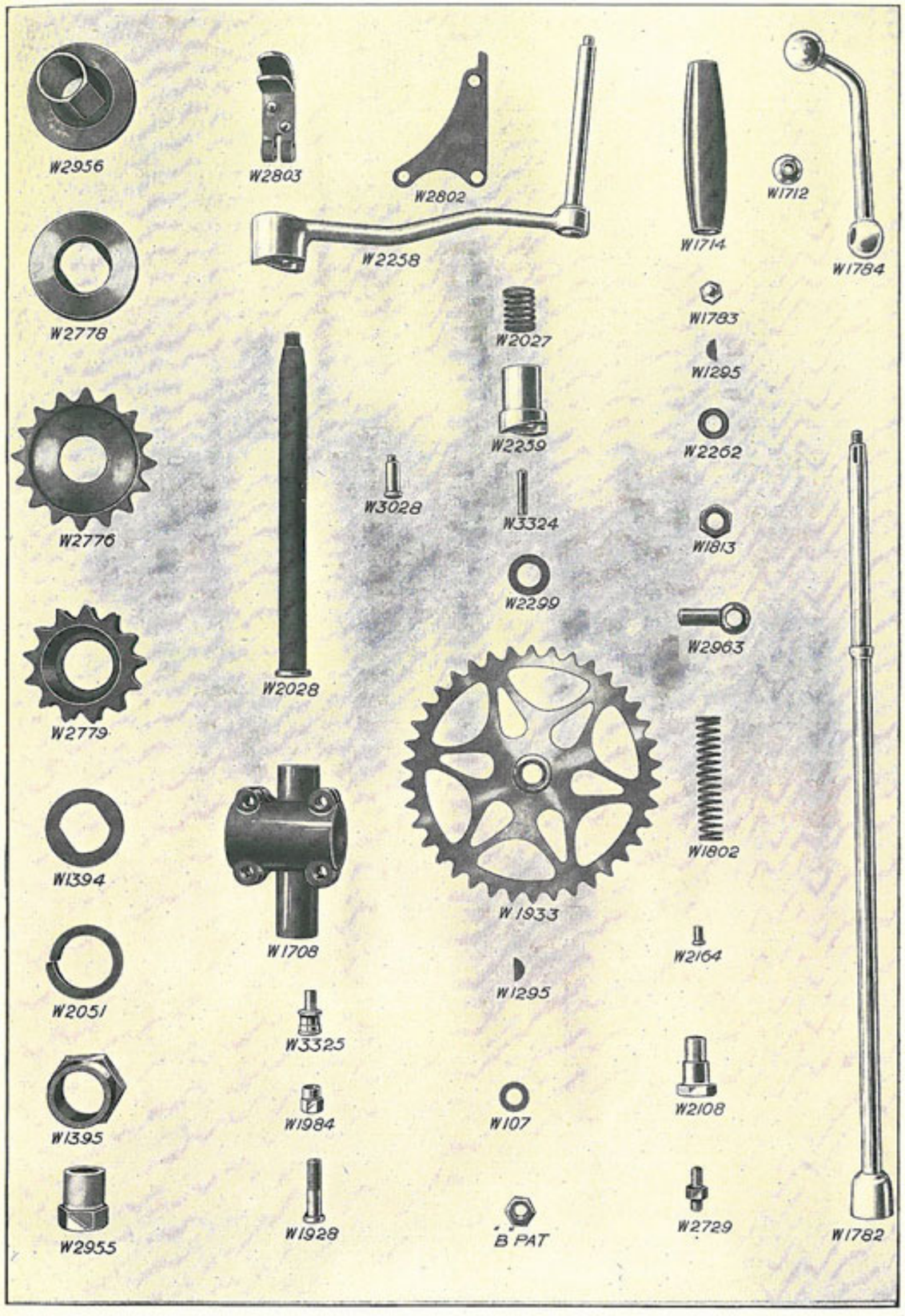
Quote this No. and name of part when ordering.	These Nos. are for Works' use only. Do not quote them.	Description.	Price. £ s. d.
A61	W1385	2-speed gear actuating peg	– – 6
A62	W2127	,, packing piece for rack ...	– – 2
A63	W3129	,, oil pipe union	– – 4
A64	W1377	,, cone for spindle	– 1 0
A65	W1396	,, feather	– – 2
A66	W1390	,, Woodruff key	– – 2
A67	W1386	,, small cone	– – 6
A68	W1739	,, spring roller	– 1 6
A69	W1042	,, $\frac{3}{16}$in. screws	– – 2
A70	W2269	,, $\frac{3}{8}$in. hexagon nut ..	– – 3
A71	W2270	,, $\frac{3}{8}$in. lock nut	– – 2
A72	W1677	,, spindle lock nut	– 1 0
A73	W1787	,, bush for thrust bracket	– 1 0
A74	W3127	,, clutch drum (high gear)	– 10 6
A75	W1825	,, spindle lock washer ..	– – 2
A76	W1389	,, plain washer	– – 2
A77	W1383	,, sliding cam	– 6 0
A78	W2168	,, starting ratchet	– 2 6
A79	W1806	,, packing washer	– – 2
A80	W1744	,, thrust bracket	– 10 0
A81	W1371	,, spindle nut	– 1 0
A82	W1605	,, hexagon cap nut ..	– 1 0
A83	W1362	,, clutch drum (low gear)	– 6 0
A84	W2728	,, locking washer	– – 4
A85	W2208	,, fibre washer	– – 3
A86	W1373	,, thrust washers	– – 8
A87	W3128	,, chain wheel, 15 teeth ..	– 3 0
A88	W2170	,, starting ratchet cone, left hand	– 1 6
A89	W2169	,, ,, ,, right hand	– 1 6
A90	W2167	,, ,, ,, centre ...	– 2 6
A91	W1374	,, ball thrust	– 4 0
A92	W2110	,, expanding band	– 5 0
A93	W1381	,, nut for eccentric ...	– 0 9
A94	W1366	,, centre, high gear ...	– 5 0
A95	W1375	,, eccentric	– 8 6
A96	W1365	,, centre, low gear	– 8 0
A97	W1809	,, operating pinion	– 4 6
A98	W1378	,, spindle	– 15 0
A99	W1384	,, rack	– 3 6
A100	W3332	,, $\frac{9}{32}$in. ball (doz.)	– – 4
A101	W3466	,, $\frac{1}{8}$in. ball ,, ...	– – 3
A102	W2164	,, chain wheel rivet (set of 8)	– – 2
A103	W2108	,, set pin for thrust bracket	– – 9
A104	W2729	,, locking washer stud ...	– – 4
A105	"F" Pat.	,, $\frac{1}{4}$in. hexagon nut for stud	– – 2
A106	W 82	,, $\frac{1}{4}$in. washer for stud ...	– – 2



See opposite page for description and prices.

SLIPPING CLUTCH, HANDLE STARTING AND HANDLE OPERATING.

Quote this No. and name of part when ordering.	These Nos. are for Works' use only. Do not quote them.	Description.	Price. £	s.	d.
A107	W2956	Slipping clutch centre	–	2	0
A108	W2778	,, large washer ...	–	1	3
A109	W2779	,, 13T pinion ..	–	3	0
A110	W2776	,, 16T sprocket ..	–	2	0
A111	W1394	,, small washer ..	–	–	2
A112	W2051	,, spring washer ..	–	–	2
A113	W1395	,, nut	–	1	0
A114	W2955	,, nut for engine shaft..	–	1	0
A115	W2802	Handle starting stop	–	1	2
A116	W2803	,, stop clip	–	–	6
A116a	—	,, free-wheel	–	5	0
A116b	—	,, ,, springs ...	–	–	3
A116c	—	,, ,, pawls ..	–	–	3
A117	W2258	,, handle	–	4	6
A118	W1714	,, handle grip	–	1	8
A119	W1712	,, grip washer ...	–	–	2
A120	W2027	,, spring	–	–	2
A121	W2259	,, spindle clutch ..	–	2	0
A122	W3028	,, swivel pin	–	–	2
A123	W3324	,, taper pin	–	–	2
A124	W2299	,, spring washer ...	–	–	2
A125	W1933	,, chain wheel ...	–	3	6
A126	W1295	,, Woodruff key ...	–	–	2
A127	W 107	,, $\frac{3}{8}$in. washer ...	–	–	2
A128	"B" Pat.	,, $\frac{3}{8}$in. hexagon nut ...	–	–	2
A129	W2028	,, spindle	–	2	0
A130	W1708	,, bracket	–	3	9
A131	W3325	,, lubricator	–	–	3
A132	W1984	,, nut	–	–	2
A133	W1928	,, pin	–	–	2
A134	W3470	,, chain, $\frac{1}{2}$in. × $\frac{1}{3}$in. ...	–	1	8
A135	W1041	,, washer for swivel pin,	–	–	2
A136	W2802-3	,, stop clip rivetted up...	–	2	0
A137	W1783	Handle operating rod nut	–	–	4
A138	W1784	,, lever	–	3	6
A139	W1295	,, Woodruff key ...	–	–	2
A140	W2262	,, $\frac{7}{16}$in. washer ...	–	–	2
A141	W1813	,, $\frac{7}{16}$in. hexagon nut	–	–	4
A142	W2963	,, bearing for rod ...	–	1	0
A143	W1802	,, spring ...	–	–	2
A144	W1782	,, rod with coupling and collar	–	3	0



See opposite page for description and prices.

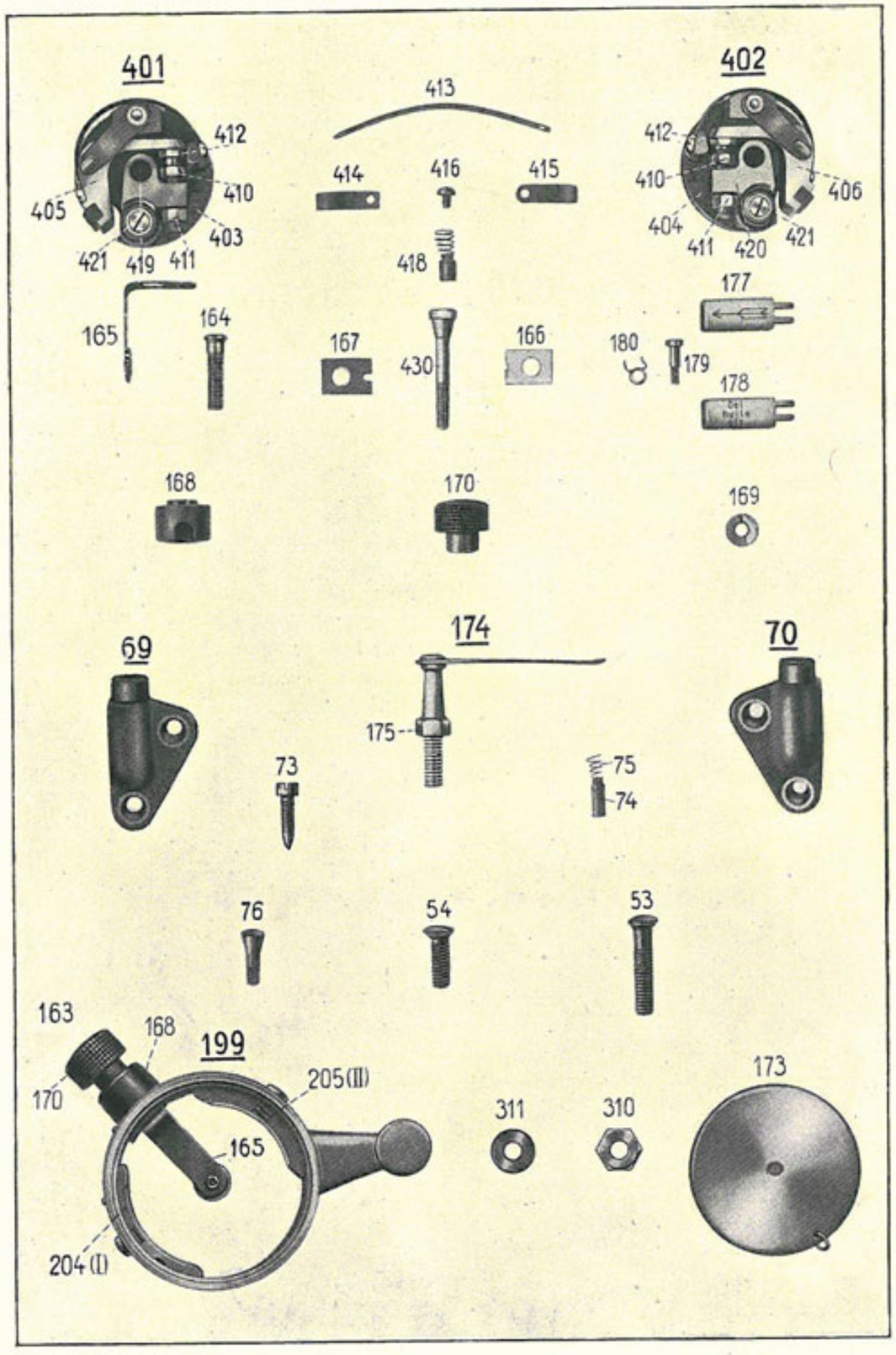
MAGNETO PARTS.

Quote this No. and name of part when ordering.	These Nos. are for Works' use only. Do not quote them.	Description.	Price. £ s. d.
A145	B 53	Top fastening screw for front and rear end plates ...	- - 2
A146	B 54	Lower fastening screw for front and rear end plates ...	- - 2
A147	B 69	Carbon holder, left, complete	- 3 5
A148	B 70	,, ,, right, complete	- 3 5
A149	B 73	Fastening screw for cable	- - 2
A150	B 74	Carbon brush	- - 4
A151	B 75	Spiral spring for carbon 74	- - 2
A152	B 76	Fastening screw for carbon holder 69 and 70 ...	- - 2
A153	B 163	Short circuiting terminal on timing lever (196/199) ...	- 1 5
A154	B 164	Bolt screw for short circuiting terminal 163 ...	- - 2
A155	B 165	Flat spring for short circuiting terminal 163 ...	- - 3
A156	B 166	Mica washer for insulating flat spring 165 ...	- - 2
A157	B 167	Fibre piece for insulating flat spring 165 ...	- - 3
A158	B 168	Vulcanite bush for short circuiting terminal 163 ...	- - 4
A159	B 169	Nut for short circuiting terminal 163	- - 2
A160	B 170	Vulcanite nut for fastening the short circuiting cable	- - 7
A161	B 173	Cover for the timing lever (196/199)	- - 4
A162	B 174	Spring carrier with spring for holding the timing lever	- - 7
A163	B 175	,, only	- - 3
A164	B*176	Oil cover on the front end plate for right hand magnetos	- - 5
A165	B 177	,, ,, ,, for left hand magnetos	- - 5
A166	B 178	,, for the rear end plate	- - 5
A167	B 179	Screw for the oil covers 176, 177 and 178 ...	- - 2
A168	B 180	Spiral spring for screw 179	- - 2
A169	B*196	Timing lever right, viewed from the driven end, for left hand rotation, complete	- 11 3
A170	B*197	Timing lever right, viewed from the driven end, for right hand rotation, complete	- 11 3
A171	B*198	Timing lever, left, viewed from the driven end, for left hand rotation, complete	- 11 3
A172	B 199	Timing lever left, viewed from the driven end, for right hand rotation, complete	- 11 3
A173	B*200	Timing lever right, viewed from the driven end, for left hand rotation, without any fittings	- 5 3
A174	B*201	Timing lever right, viewed from the driven end, for right hand rotation, without any fittings... ...	- 5 3
A175	B*202	Timing lever left, viewed from the driven end, for left hand rotation, without any fiittngs	- 5 3
A176	B*203	Timing lever left, viewed from the driven end, for right hand rotation, without any fittings	- 5 3
A177	B 204	Contact breaker cam arranged for lubrication ...	- 2 1
A178	B 205	,, ,, ,, without lubrication ...	- 2 1
A179	B 310	Hexagon nut for driving spindle	- - 2
A180	B 311	Washer for nut 310	- - 1
A181	B 401	Complete contact breaker for left hand magnetos ...	1 1 3
A182	B 402	,, ,, ,, for right hand magnetos	1 1 3
A183	B 403	Contact breaker disc for left hand magnetos ...	- 2 4
A184	B 404	,, ,, ,, for right hand magnetos ...	- 2 4
A185	B 405	Contact breaker lever for left hand magnetos ...	- 3 5
A186	B 406	,, ,, ,, for right hand magnetos ...	- 3 5
A187	B 410	Long platinum screw	- 6 1
A188	B 411	Nut for long platinum screw	- - 2
A189	B 412	Short platinum screw	- 6 1
A190	B 413	Flat spring for contact breaker lever 405 and 406	- - 2
A191	B 414	Depressing spring on contact breaker disc ...	- - 2
A192	B 415	Auxiliary spring for contact breaker lever ...	- - 2
A193	B 416	Fastening screw for flat spring 413, 414 and 415 ...	- - 2
A194	B 418	Carbon brush with spiral spring for contact breaker disc	- - 5
A195	B 419	Contact piece for left hand magnetos.	- - 8
A196	B 420	,, ,, right hand magnetos	- - 8
A197	B 421	Fastening screw for contact piece 419 and 420 ...	- - 2
A198	B 430	Contact breaker fastening screw	- - 3

N.B.—The parts marked with a * are not shown on the illustration.

IGNITION WIRES, SPARKING PLUG, ETC.

A199	W3371	Ignition wire (short)	- 1 0
A200	W3372	,, ,, (long)	- 1 3
A201	W3384	Sparking plug	- 3 6
A202	W3394	,, ,, asbestos washer....	- - 3
A203	W3390	,, ,, terminal end.	- - 6
A204	W3388	,, ,, ,, ,, cover (rubber). ...	- - 7
A205	W3389	,, ,, ,, ,, nipple.	- - 2



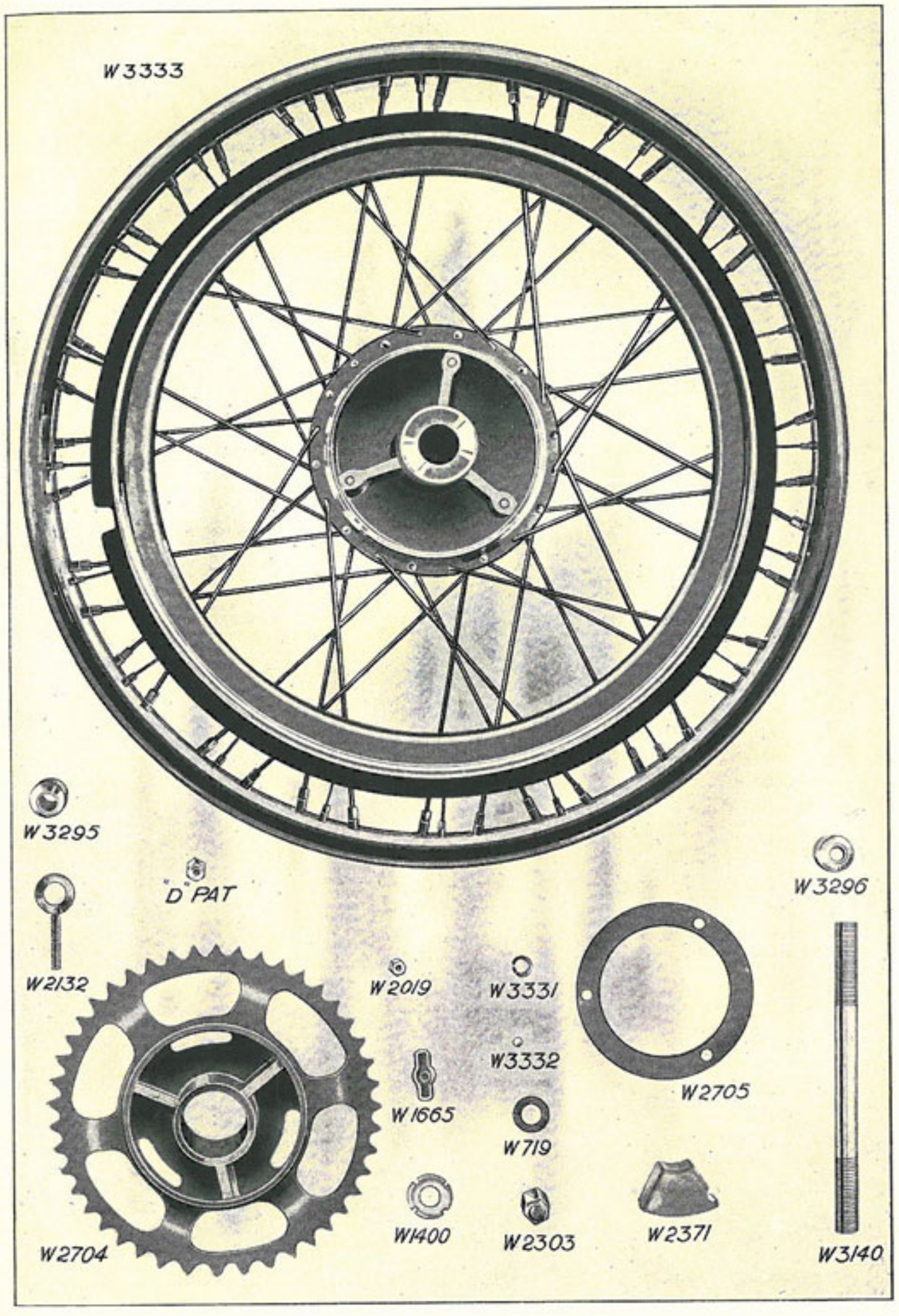
See opposite page for description and prices.

REAR HUB.

Quote this No. and name of part when ordering.	These Nos. are for Works' use only. Do not quote them.	Description.	Price. £ s. d.
A206	W3140	Rear hub spindle and fixed cone ...	– 2 0
A207	W2371	,, rubber blocks (each) ...	– – 9
A208	W2303	,, spindle nut	– – 10
A209	W1400	,, lock nut.	– – 3
A210	W 719	,, spindle washer	– – 2
A211	W1665	,, draw plates (each)... ...	– – 6
A212	W3332	,, $\frac{9}{32}$in. ball (per dozen) ...	– – 4
A213	W2705	,, lock ring	– 1 6
A214	W3331	,, spring washer	– – 2
A215	W2019	,, $\frac{1}{4}$in. hexagon nut	– – 2
A216	W2704	,, driving sprocket	– 12 6
A217	"D" Pat.	,, $\frac{5}{16}$in. hexagon nut	– – 2
A218	W2132	,, draw bolt	– – 4
A219	W3295	,, adjustable cone	– 1 2
A220	W3296	,, fixed ditto	– 1 3
A221	W2706	Rear hub studs, $\frac{5}{16}$in.	– – 3
A222	W3471	Ball retainer (without balls)	– – 2
A223	W3472	Lubricator	– – 3
A224	W3131	Dust washer (small)	– – 5
A225	W3137	,, ,, (large)	– – 10
A225a	W3333	Rear Wheel, built up	3 5 0

ROLLER CHAINS.

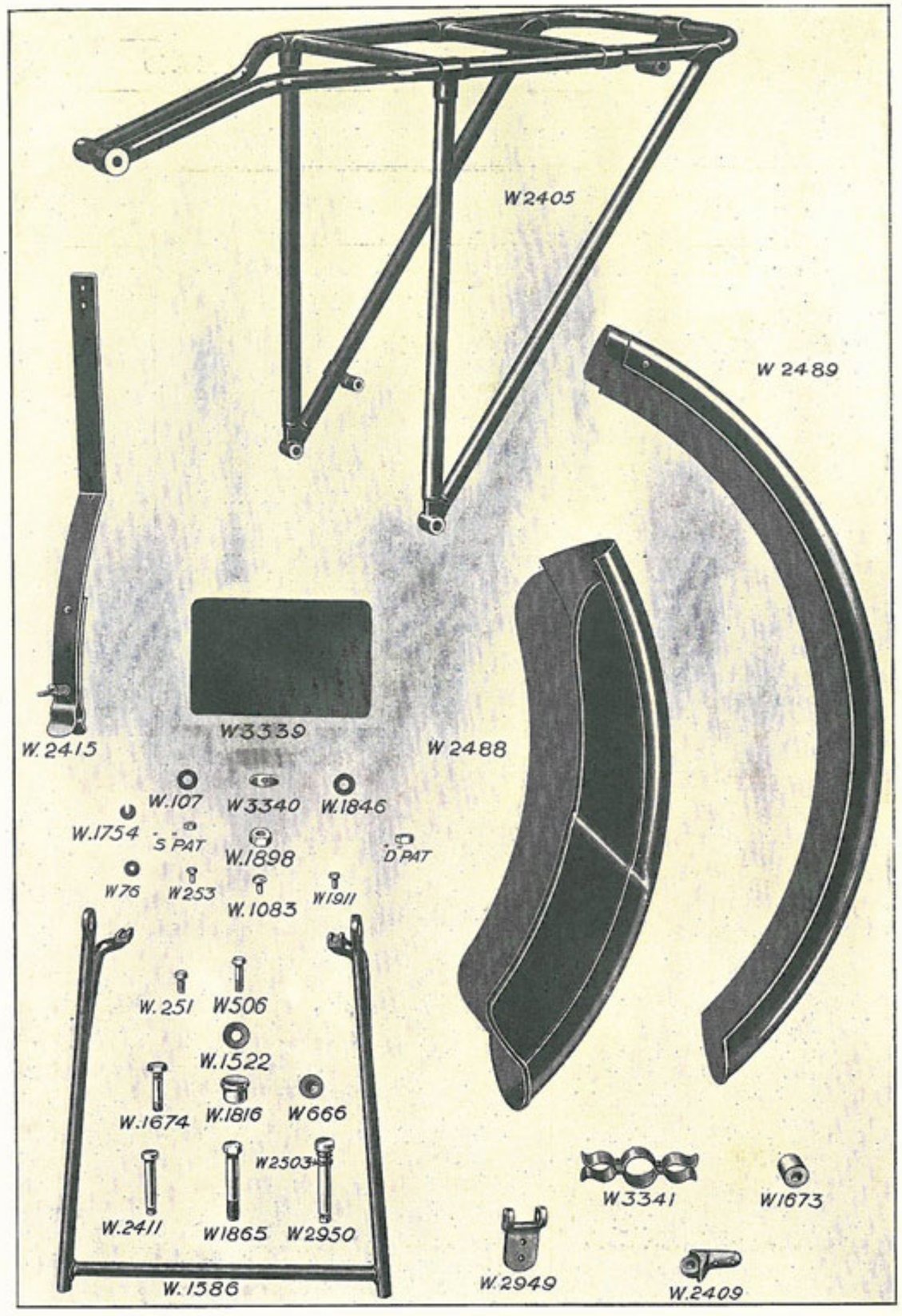
A226	W3467	Low gear chain	– 6 0
A227	W3468	High ,, ,, ...	– 5 6
A228	W3469	Driving chain	– 10 0
A229		Cranked link	– – 6
A230		Spring clip joint	– – 3



See opposite page for description and prices.

REAR MUDGUARD, CARRIER AND STAND.

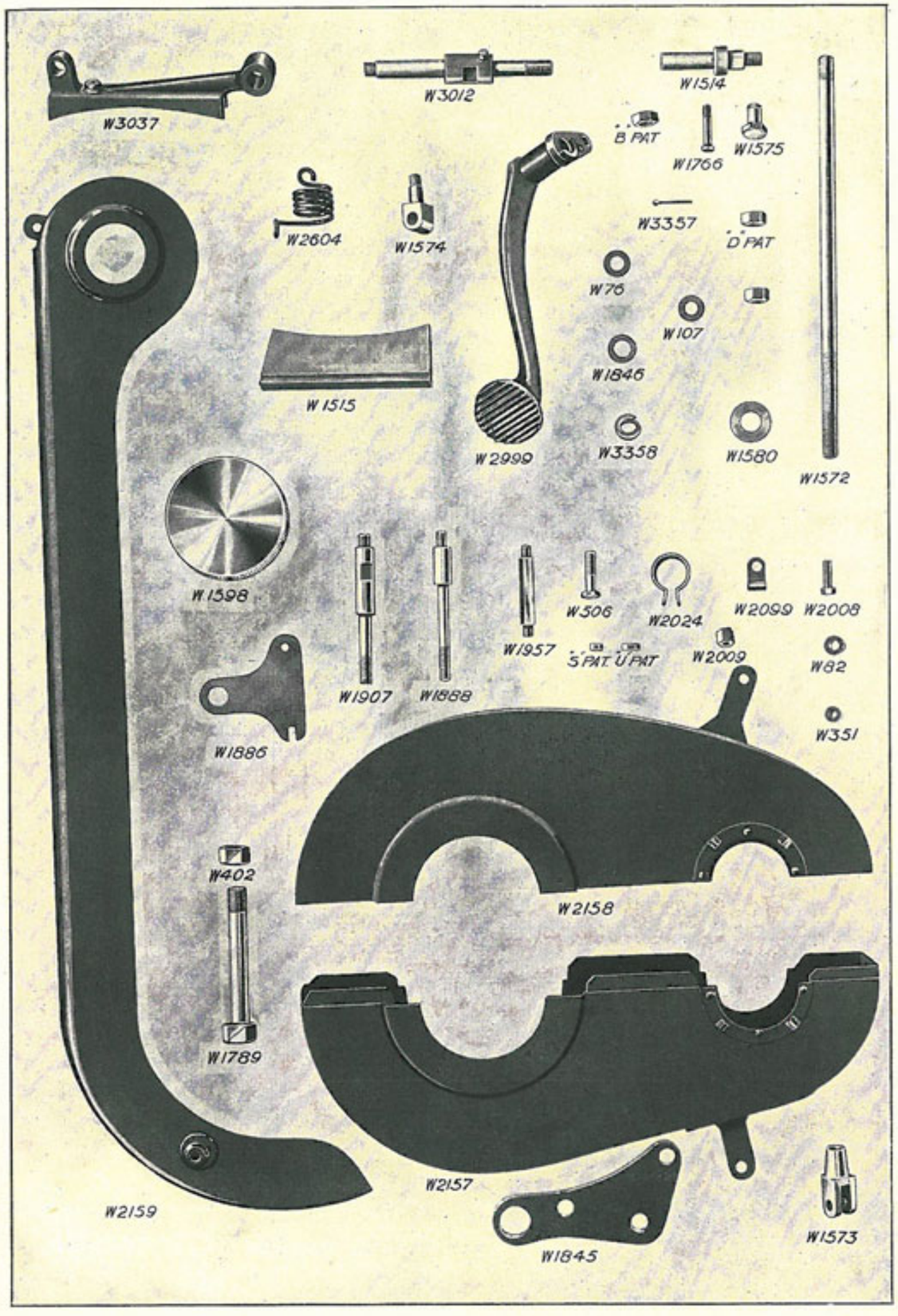
Quote this No. and name of part when ordering.	These Nos. are for Works' use only. Do not quote them.	Description.	Price £ s. d.
A231	W3338	Tool bag (right or left hand)	– 5 6
A232	W2405	Carrier	1 7 6
A233	W2415	Rear stand clip complete	– 3 6
A234	W3339	Number plate	– 1 0
A235	W2488	Mudguard (fixed) }	– 11 6
A236	W2489	,, (swinging) }	
A237	W 107	,, ⅜in. washer	– – 2
A238	W3340	,, ¼in. plate	– – 2
A239	W1846	Seat pin washer, 7/16in.	– – 2
A240	W1754	Mudguard slot washer	– – 2
A241	W1898	Seat pin hexagon nut, 7/16in.	– – 3
A242	W1083	¼in. mudguard pin	– – 2
A243	W 251	¼in. ,, ,, ...	– – 2
A244	W 506	5/16in. ,, ,, ...	– – 3
A245	W1522	Footboard washer	– – 2
A246	W1674	Rear stand pin	– – 3
A247	W 666	,, ,, bush	– – 2
A248	W1816	Rear fork-end plug	– – 9
A249	W2411	Mudguard release pin	– – 6
A250	W1865	Seat lug bolt	– – 5
A251	W2950	Mudguard-end release pin	– – 5
A252	W2503	Spring for ditto	– – 2
A253	W1586	Rear stand	– 10 6
A254	W3341	Oil can clip	– 1 8
A255	W1673	Rear stand collar	– – 3
A256	W2949	Mudguard end clip piece	– 1 0
A257	W2409	Mudguard clip	– – 8
A258	"D" Pat.	5/16in. hexagon nut for stand pin (rear)	– – 2
A259	W 76	5/16in. washer for ditto	– – 2
A260	W 253	3/16in. bolt for stand clip	– – 2
A261	"S" Pat.	3/16in. nut for ditto	– – 2
A262	W1946	Tool bag clips ... ... each	– – 6
A263	W1911	3/16in. bolts for ditto	– – 2
A264	"J" Pat.	3/16in. nuts for ditto	– – 2



See opposite page for description and prices

REAR BRAKE GEAR CASE AND ACCESSORIES.

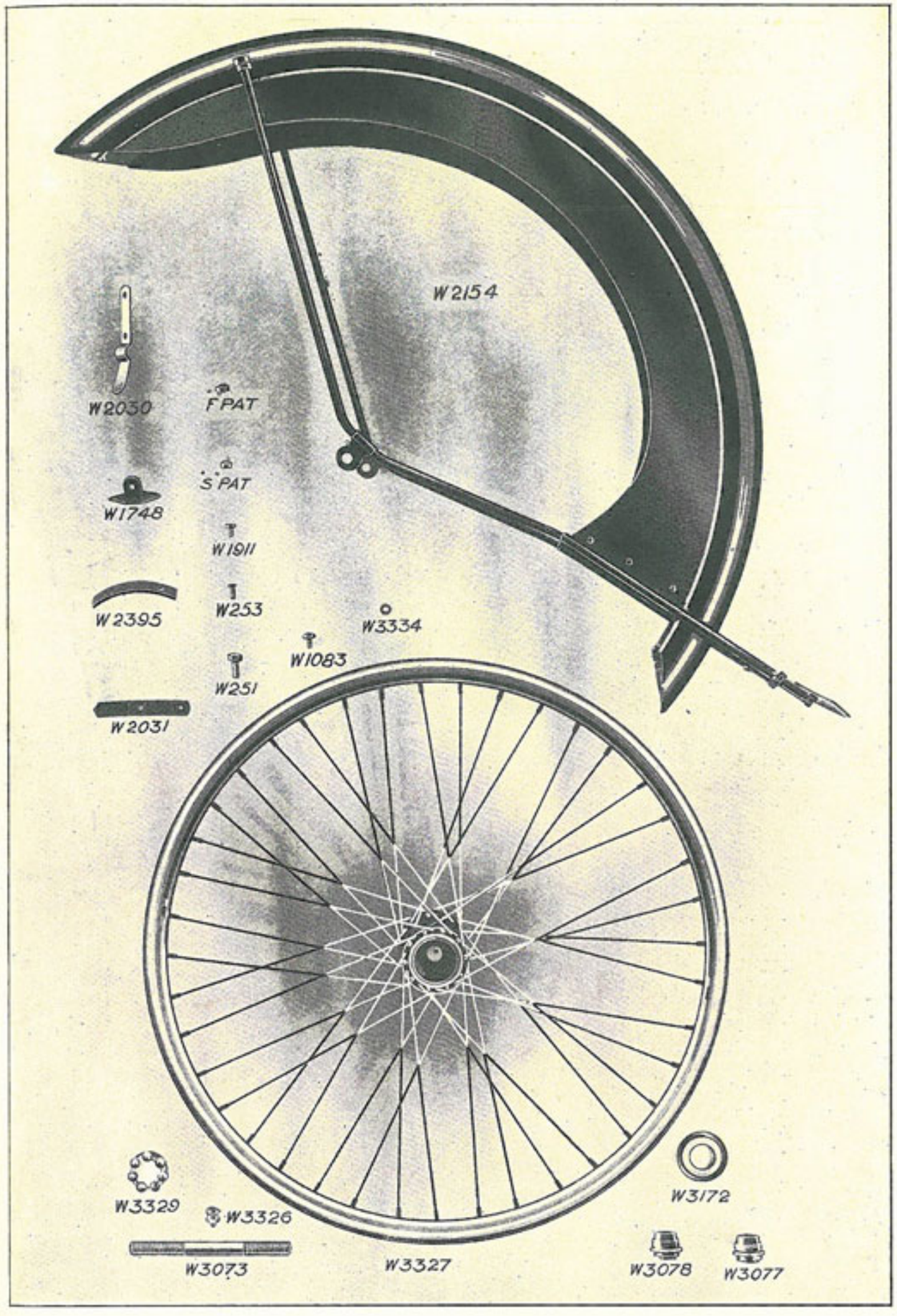
Quote this No. and name of part when ordering.	These Nos. are for Works' use only. Do not quote them.	Description.	Price. £ s. d.
A265	W3037	Rear brake shoe	– 2 0
A266	W3012	,, lever stud	– 2 3
A267	W1514	,, shoe stud	– 1 6
A268	"B" Pat.	,, ⅜in. hexagon nuts ...	– – 3
A269	W1766	,, fibre screw	– – 3
A270	W1575	,, connection screw ...	– – 3
A271	W3357	,, split pin	– – 2
A272	"D" Pat.	,, ⅜in. hexagon nut ...	– – 3
A273	W 76	,, ⅝in. washer	– – 2
A274	W 107	,, ⅜in. washer	– – 2
A275	W1846	,, 7/16in. washer	– – 2
A276	W2603	,, ¼in. dowell	– – 2
A277	W2604	,, spring	– – 3
A278	W1574	,, shoe connection	– 1 0
A279	W1515	,, shoe fibre	– 1 9
A280	W2999	,, lever	– 2 0
A281	W3358	,, spring washer	– – 4
A282	W1572	,, rod	– – 9
A283	W1580	,, engine bolt ½in. washer	– – 3
A284	W1598	Gear case cap	– 2 3
A285	W1886	,, clip	– – 10
A287	W1888	Engine bolt	– 1 2
A288	W1957	,, ...	– – 6
A289	W 506	5/16in. hexagon head pin	– – 4
A290	W2024	Footrest tube clip	– – 4
A291	W2099	Gear oil pipe clip	– – 4
A292	W2008	Gear case clip bolt, 3/16in.	– – 2
A293	W2009	,, ,, ,, lock nut, 3/16in. ...	– – 2
A294	"S" Pat.	,, ,, ,, nut, 3/16in.	– – 3
A295	"U" Pat.	Engine bolt nut, ¼in.	– – 3
A296	W 82	,, ,, washer, ¼in.	– – 2
A297	W 351	Gear case clip washer, 3/16in.	– – 2
A298	W 402	Engine bolt nut, ½in.	– – 3
A299	W1789	Engine bolt	– – 9
A300	W2158 / W3117	Gear cover, bottom half / ,, ,, top half ... complete ...	– 15 0
A301	W2157 / W3118		
A302	W1845	Engine plate	– 1 0
A303	W1573	Rear brake lever connection	– 1 2
A304	W2159	Driving chain cover	– 5 0



See opposite page for description and prices.

FRONT WHEEL AND MUDGUARD.

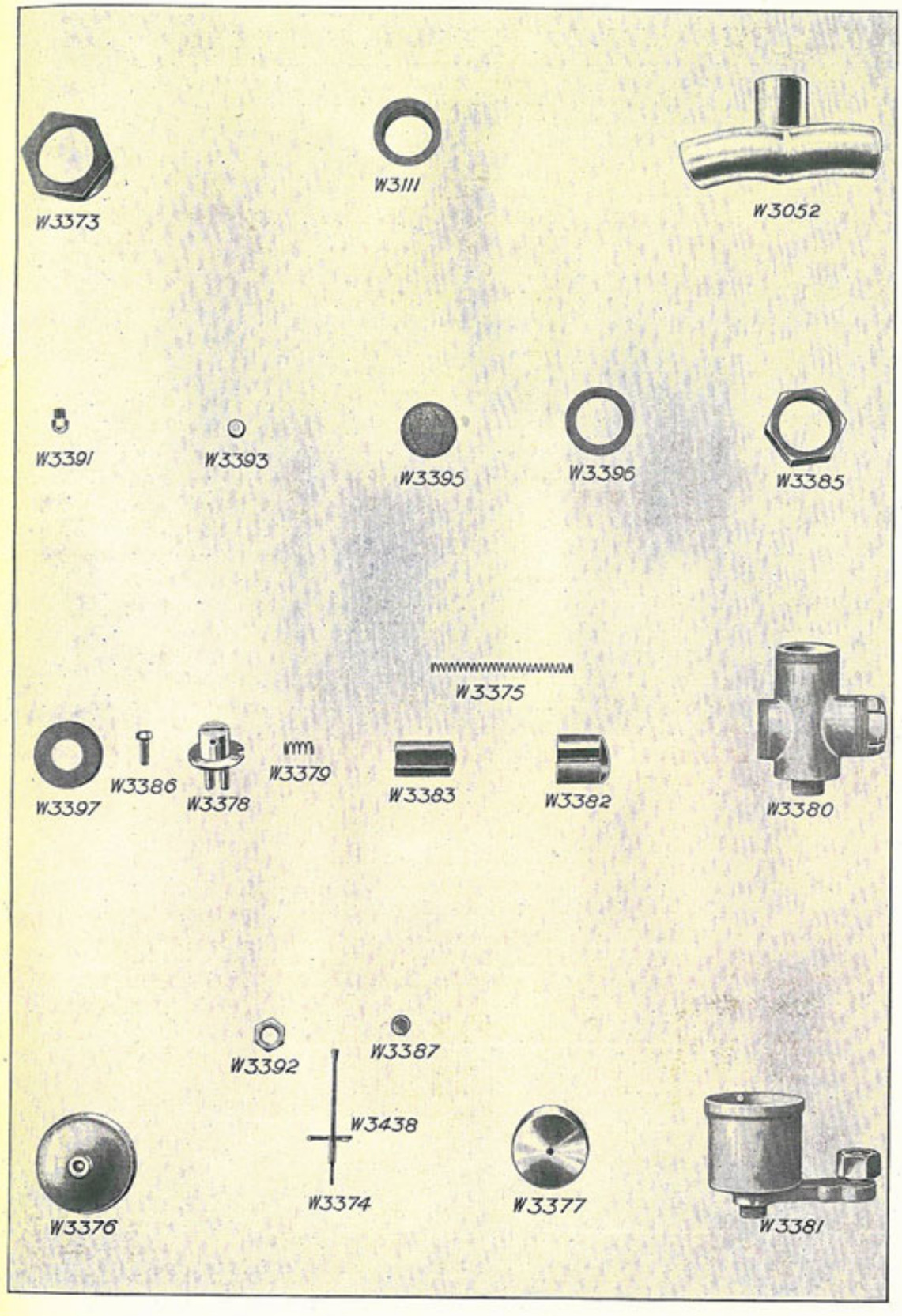
Quote this No. and name of part when ordering.	These Nos. are for Works' use only. Do not quote them.	Description.	Price. £ s. d.
A305	W2154	Front mudguard, complete	– 11 0
A306	W2030	,, stand clip	– – 9
A307	W1748	,, number plate clip	– – 7
A308	W2395	,, mudguard strap	– – 3
A310	W 251	,, mudguard ¼in. bolt	– – 2
A311	" F " Pat.	,, ,, hexagon nut ...	– – 2
A312	W3329	,, hub ball cage, with balls ...	– 1 0
A313	W3326	,, ,, lubricator	– – 4
A314	W3073	,, ,, spindle	– 1 2
A315	W3327	,, wheel (no tyre)	1 2 6
A316	W3172	,, hub dust cover	– – 4
A317	W3078	,, ,, fixed cone	– – 8
A318	W3077	,, ,, adjustable cone	– – 8
	W3458	,, number plate	– 1 0
A320	W 253	,, mudguard, $\frac{3}{16}$in. pin $\times 1\frac{3}{32}$in. long	– – 2
A321	W1911	,, ,, $\frac{3}{16}$in. pin $\times \frac{3}{8}$in. long	– – 2
A322	W3485	,, number plate clip	– – 4
A323	" S " Pat.	,, mudguard, $\frac{3}{16}$in. hexagon nuts	– – 2



See opposite page for description and prices.

CARBURETTER.

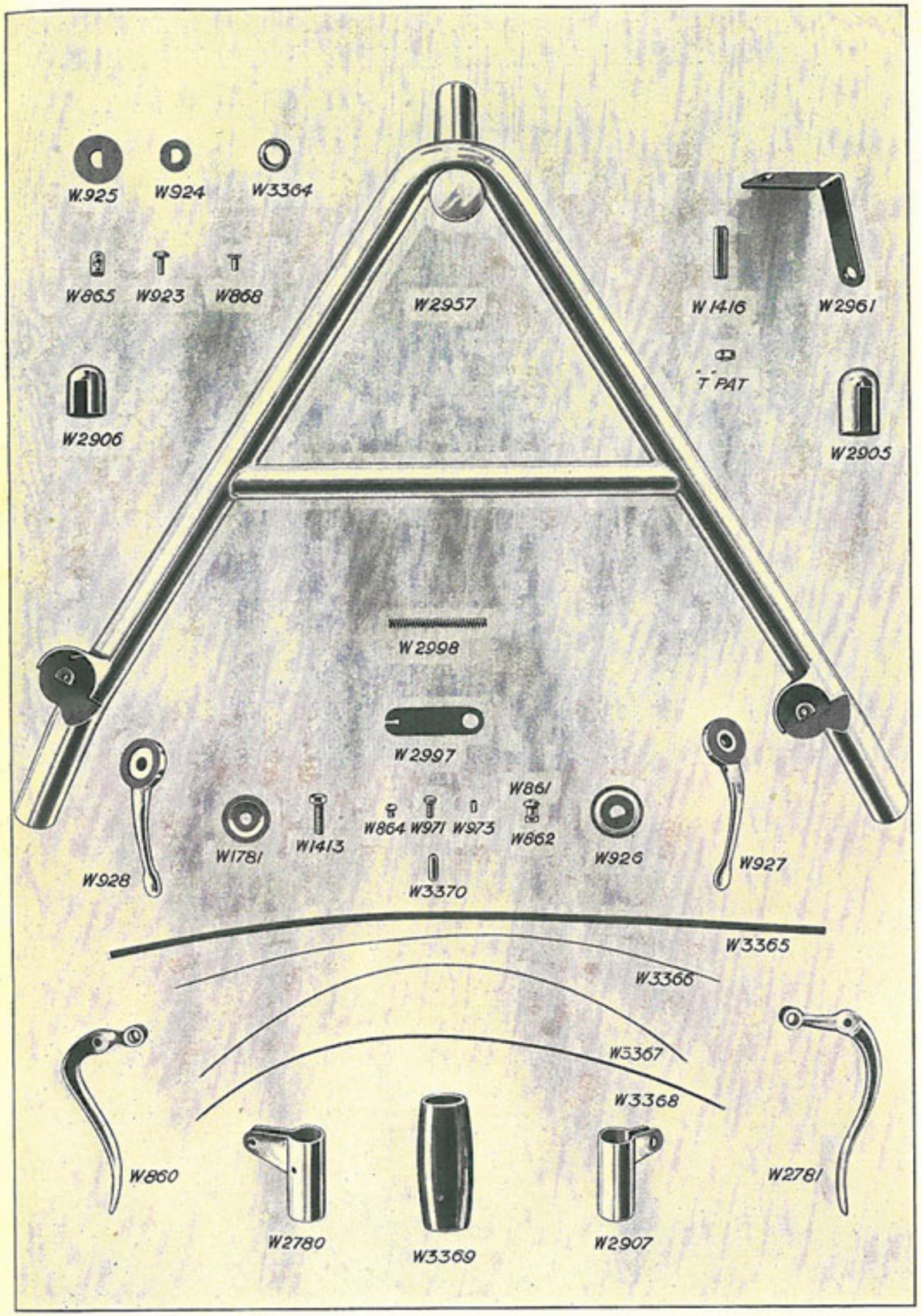
Quote this No. and name of part when ordering.	These Nos. are for Works' use only. Do not quote them.	Description.	Price. £ s. d.
A359	W3373	Induction pipe nut (engine)	– 3 0
A360	W3111	„ „ collar	– 1 3
A361	W3052	Induction pipe	– 4 0
A362	W3391	Jet	– – 6
A363	W3393	Gauze for petrol	– – 4
A364	W3395	„ air inlet	– – 10
A365	W3396	Lock ring for air inlet	– 1 0
A366	W3385	Induction pipe nut (carburetter) ...	– 3 0
A367	W3397	Lock ring for control top	– 1 0
A368	W3386	Adjustment screw for wire	– – 3
A369	W3378	Control top	– – 10
A370	W3379	Short spring	– – 2
A371	W3375	Long „	– – 3
A372	W3383	Throttle slide	– 1 6
A373	W3382	Air slide	– 1 6
A374	W3380	Mixing chamber (with sprayer) ...	– 7 6
A375	W3376	Float chamber cap	– 1 9
A376	W3392	Nut for float chamber cover	– – 3
A377	W3387	Float tickler cap	– – 3
A378	W3438	Split pin for needle	– – 3
A379	W3374	Needle	– 1 3
A380	W3377	Float	– 1 3
A381	W3381	Float chamber (without float) ...	– 7 6



See opposite page for description and prices.

HANDLEBAR AND CONTROLS.

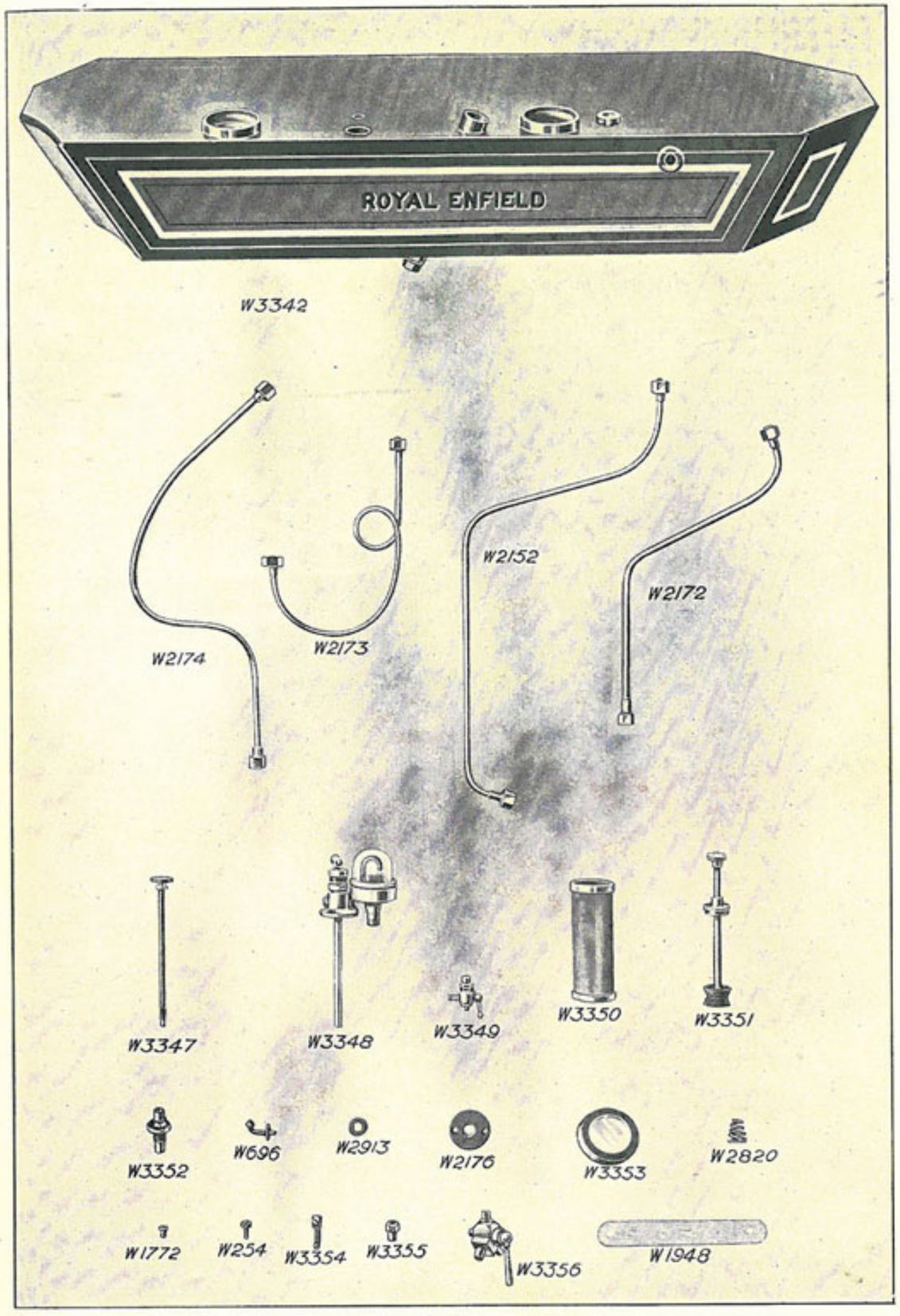
Quote this No. and name of part when ordering.	These Nos. are for Works' use only. Do not quote them.	Description.	Price. £	s.	d.
A382	W 925	Control middle plate	–	–	2
A383	W 924	,, washer	–	–	2
A384	W3364	,, spring washer	–	–	2
A385	W 865	Inverted lever roller	–	–	2
A386	W 923	Control screw, $\frac{5}{32}$in.	–	–	2
A387	W 868	Inverted lever lock nut screw ...	–	–	2
A388	W2906	Front brake pocket cap	–	–	3
A389	W2957	Handlebar	1	17	6
A390	W1416	Exhaust adjuster nut	–	–	4
A391	W2961	Magneto plate	–	–	3
A392	"T" Pat.	Exhaust adjuster lock nut	–	–	3
A393	W2905	,, pocket cap	–	–	4
A394	W2998	Magneto spring	–	–	2
A395	W2997	,, wire stop	–	–	6
A396	W 928	Control top lever (air)	–	1	6
A397	W1781	,, thick washer	–	–	3
A398	W1413	Exhaust adjuster screw	–	–	3
A399	W 971	Magneto control nipple	–	–	2
A400	W 926	Control top washer	–	–	4
A401	W 927	Control lever, throttle and magneto...	–	1	9
A402	W3370	Cable cover nipple	–	–	2
A403	W3366	Cable for exhaust	–	–	5
A404	W3367	,, carburetter and magneto ...	–	–	4
A405	W3368	,, front brake	–	–	5
A406	W3398	,, exhaust lifter	–	–	4
A407	W 860	Inverted lever for front brake ...	–	2	0
A408	W2780	Pocket for exhaust	–	–	9
A409	W2907	Ditto for front brake	–	–	6
A410	W2781	Inverted lever for exhaust	–	1	10
A411	W3369	Handlebar grip	–	–	9
A412	W3365	Cable cover for exhaust (long) ...	–	–	11
A413	W3399	,, ,, ,, (short) ...	–	–	11
A414	W3400	,, ,, carburetter	–	1	8
A415	W3401	,, ,, magneto	–	1	9
A416	W3402	,, ,, front brake	–	1	0
A417	W 973	Nipples for control & exhaust ($\frac{1}{8}$in. × $\frac{7}{32}$in.)	–	–	2
A418	W 861	Inverted lever pivot screw ($\frac{5}{32}$ × $\frac{7}{16}$in. long)	–	–	2
A419	W 862	,, ,, ,, screw nut	–	–	3
A420	W 864	,, ,, roller nipple exhaust ...	–	–	2
A421	W1676	Exhaust spring	–	–	3
A424	W1304	,, spring nipple	–	–	2
A423	W1414	,, cable nipple ($\frac{3}{16}$dia. × $\frac{1}{32}$in. long)	–	–	2
A424	W1473	Front brake roller nipple	–	–	2



See opposite page for description and prices.

TANK FITMENTS.

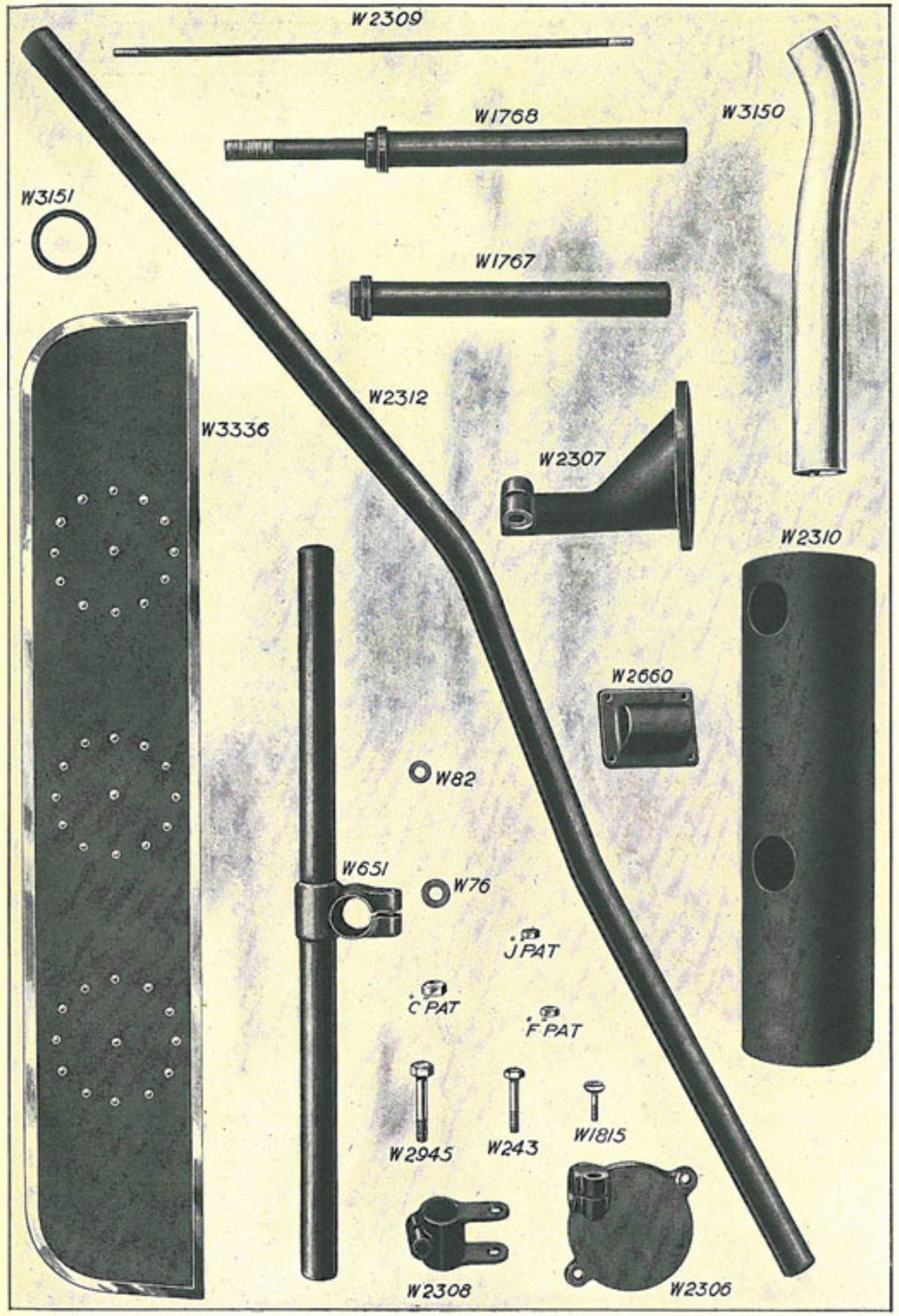
Quote this No. and name of part when ordering.	These Nos. are for Works' use only. Do not quote them.	Description.	Price. £ s. d.
A425	W3342	Tank (exactly as shown)	3 10 0
A426	W2174	Drip feed oil pipe, with union ...	– 3 0
A426a	W2174	,, ,, side tube	– 1 0
A427	W2173	Petrol pipe	– 1 6
A428	W2152	Oil pipe to gear	– 1 6
A429	W2172	,, to engine	– 1 6
A430	W3347	Petrol needle valve	– 1 8
A431	W3348	Drip feed glass and body	– 9 6
A431a	W3348	,, ,, ,, only	– 1 0
A431b	W3348	,, ,, splash disc	– – 4
A432	W3349	Petrol drain tap	– 1 3
A433	W3350	,, filter	– – 8
A434	W3351	Oil pump plunger	– 4 0
A435	W3352	Needle valve connection	– – 8
A436	W 696	Pump peg	– – 2
A437	W2913	Needle valve leather washer	– – 8
A438	W2176	Drip feed fibre washer	– – 2
A439	W3353	Petrol and oil filler caps ... each	– 1 6
A440	W2820	Spring for needle valve	– – 3
A441	W 254	$\frac{3}{16}$in. pin for frame clips	– – 2
A442	W3354	Cable clips	– – 3
A443	W3355	Bearing for needle valve	– – 8
A444	W3356	Oil 2-way tap	– 4 6
A445	W1948	Felt packing	– – 3
A446	W1772	Cable clip screws, $\frac{5}{32}$in.	– – 2



See opposite page for description and prices

SILENCER AND FOOTBOARDS.

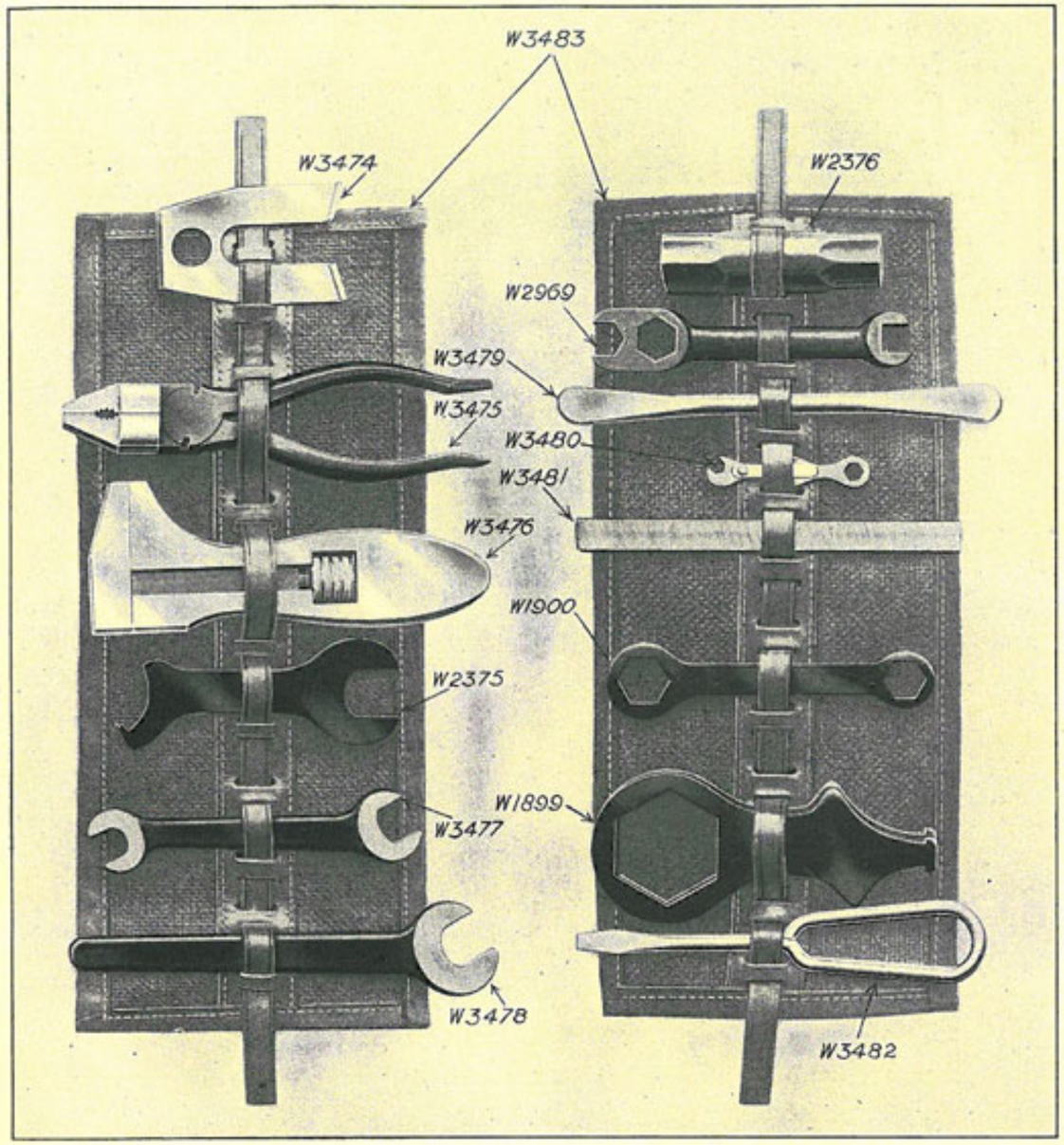
Quote this No. and name of part when ordering.	These Nos. are for Works' use only. Do not quote them.	Description.	Price. £ s. d.
A447	—	Silencer complete	1 1 0
A448	W2306	Silencer end front	– 2 0
A449	W2308	,, rear end clip	– 1 4
A450	W1815	Footboard, $\frac{3}{16}$in. bolts	– – 2
A451	W 243	Silencer, $\frac{1}{4}$in. bolts	– – 3
A452	W2945	,, $\frac{5}{16}$in. bolts	– – 3
A453	"F" Pat.	,, $\frac{1}{4}$in. hexagon nut	– – 2
A454	"C" Pat.	,, $\frac{5}{16}$in. hexagon nut	– – 2
A455	W 76	,, $\frac{5}{16}$in. washer	– – 2
A456	W 82	,, $\frac{1}{4}$in. washer	– – 2
A457	"J" Pat.	Footboard, $\frac{3}{16}$in. hexagon nuts ...	– – 2
A458	W 651	Footrest tube (rear) and lug	– 1 2
A459	W2660	Footboard bracket	– 1 0
A460	W3336	Footboard	– 5 6
A461	W1767	Footrest tube and nut	– 3 0
A462	W1768	,, ,, bolt	– 3 0
A463	W2310	Silencer barrel	– 2 0
A464	W2307	,, end rear	– 2 6
A465	W2309	,, stud	– – 6
A466	W3151	Exhaust pipe asbestos washer ...	– – 3
A467	W2312	Long exhaust pipe	– 2 6
A468	W3150	Short ,, ,, ... each	– 2 6
A469	W2163	Footboard wood screws	– – 2
A470	W2661	,, spring	– – 8
A471	W 251	,, screws, $\frac{1}{4}$in., for end of tubes	– – 3
A472	W1811	,, screws, $\frac{3}{16}$in., for tube clip	– – 2



See opposite page for description and prices.

TOOLS.

Quote this No. and name of part when ordering.	These Nos. are for Works' use only. Do not quote them	Description.	Price. £ s. d.
A473	W3474	Valve spring lifter	– 1 6
A474	W3475	Pliers	– 2 6
A475	W3476	Adjustable spanner	– 3 6
A476	W2375	Spanner	– – 8
A477	W3477	Short engine spanner	– 3 0
A478	W3478	Long ,, ,,	– 3 0
A479	W2376	Tubular box spanner (small)	– 1 0
A480	W2969	Combination spanner	– 1 0
A481	W3479	Tyre lever	– 1 6
A482	W3480	Magneto spanner	– 1 0
A483	W3481	File	– 1 0
A484	W1900	Small spanner	– – 6
A485	W1899	Large ,,	– 1 0
A486	W3482	Screwdriver	– – 9
A487	W3483	Tool roll with strap	– 2 6
A488	W3484	Tubular box spanner (large)	– 2 0
A489	W3338	Tool bag (without roll), right or left	– 5 6
A490	—	Tool rolls and complete set of tools—as illustrated on opposite page—but not including tool bags	1 9 6



See opposite page for description and prices.

OVERHAULING.

When forwarding a complete Motor Cycle, Engine, Carburetter or Magneto with the request that we overhaul the same, we understand by the term "Overhaul" that it is to be entirely dismantled, thoroughly renovated, any worn parts renewed, and put in perfect working order. In case a customer desires only certain parts attended to, full instructions should be given us to that effect, otherwise the cost may be in excess of that anticipated.

ESTIMATES AND QUOTATIONS.

When customers send complete Motor Cycles or parts thereof to us for repairs, we are always prepared to furnish estimates before proceeding with the necessary work. At the same time, it must be distinctly understood that we can only give approximate quotations. Frequently, when the actual work is in progress, it is found necessary to replace parts other than those specified in the estimate, as we make a practice of including in such estimates only those items and parts which at the time we consider really essential to put the machine (or parts) in a thoroughly satisfactory condition.

If any estimate prepared in this way is not accepted, we reserve the right to make a nominal charge for taking down and re-assembling any parts necessary in preparing it.