

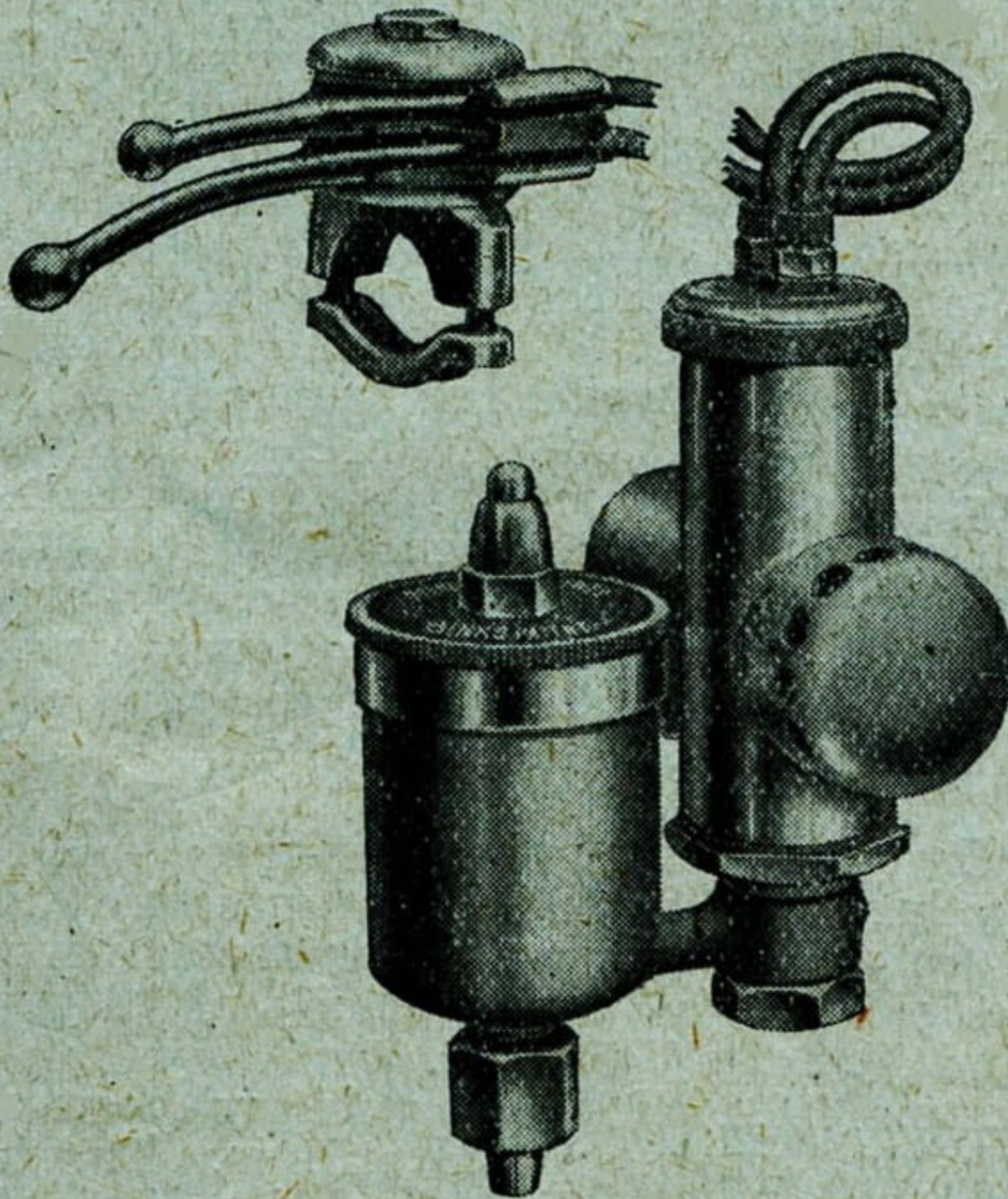
March, 1923

# 1923 Binks Carburettor

(SEMI-AUTOMATIC)

2 Jets with 2 Lever Control

For Two and Four Stroke Engines



PATENTEES AND MANUFACTURERS—

**C. BINKS (1920) LTD.**

Phoenix Works, Church Street

**ECCLES, MANCHESTER**

'Phone 208 Eccles.

Telegrams: "Carbureted"

# **Reason Why we Make the Two-Jet Carburettor**

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For many years we have been manufacturing Carburettors, which are designed to give the very best possible results, and to-day we have a valuable business in supplying the Motor Cycle or Cycle-car owner with Carburettors either direct or through agents. Our Three-Jet damping system gives the most flexible running ever known, and an economy that on an average effects a 25 per cent. saving in fuel owing to the dampers eliminating waste.

Although manufacturers appreciate the "BINKS" Three-Jet Carburettor, the cost of this super article prohibits them from fitting it to their machines as standard, consequently there is still a demand for a really flexible Carburettor to suit all engines as they are turned out in quantities from the assembling shops. It must run slowly, accelerate, give speed and power, be fairly automatic and economical, and above all, it must be inexpensive. To meet this demand we have brought out a first-class Carburettor in several models and sizes, and at such a price that will compete with other Carburettors that are being made for this market. The construction is simplicity itself.

This Two-Jet model is therefore part of our works production, and will not interfere with the manufacture or sale of our famous specialities:—viz.: the Three-Jet Damping Carburettor and "Mousetrap" Racing and "Sports" models.

The name "BINKS" has always been synonymous with slow running, and still is. The Two-Jet Carburettor has outstanding qualities; it is flexible and economical, and will make any machine, even a V or Flat Twin tick over and be controllable in traffic. The two jets give a wide range of speed, as the pilot can be tuned up for slow running, and the main jet for power and speed, and these two jets working in harmony give a wide and flexible range of speed.

There are great possibilities with a Two-Jet Carburettor.

**Insist on having it fitted to your new machine.**

## **Testimonials**

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The Carburettor has been well thought out and tried by us before presenting it to you, and has passed through the fiery criticism of technical experts and testers of many of the best Motor Cycle firms in England.

Every new article, however well introduced, more quickly wins the confidence of the prospective buyer if he can hear what other people think about it. Here are some testimonials.

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Coventry,

Dear Sirs,

October 20th, 1922.

I should like to let you know what good results I am getting from your Two-Jet Semi-Automatic Carburettors fitted to my 8-h.p. Side Valve "**Brough Superior**" and Sidecar.

On a recent journey of 156 miles, I used 2½ gallons petrol, which is over 60 m.p.g. I consider this very good, and must congratulate you upon a very fine instrument. The **flexibility is amazing**, and I have nothing but praise for it.

Sincerely yours,

W.E.S.

Tidworth,

Hants, 22/6/22.

Dear Sirs,

I am writing to tell you that I propose to keep the Two-Jet Carburettor which you kindly supplied on a month's approval on or about June 1st.

I always keep a careful record of my petrol consumption, etc., and I find that since fitting your instrument, since when I have done just over 1,000 miles, my consumption has **decreased** from 51 m.p.g. to 61 m.p.g., and my maximum speed in touring trim has increased from 62 m.p.h. to 63 m.p.h.

This is on an 8-h.p. "Matchless" Model J, ridden solo.

Yours faithfully,  
R.S.

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Bournemouth,

May 17th, 1922.

Gentlemen,

I must first apologise for the seeming delay on my part in forwarding you my promised report on the new pattern Semi-Automatic Two-Jet Carburettor received from you.

The fact is I have been giving it a thorough try-out in some of the hardest country I could find—that is in the district of Bath, the Mendips, and some parts of Devonshire.

Let me say at once that from EVERY point of merit the new instrument is a complete revelation to me—and I am a Motor Cyclist from the surface carburettor period, and what is more, for the past twelve years I have been using the very best Carburettors on the market, including your own.

The ease of starting and strong pull at low speeds is most marked, and a wonderful improvement on anything I have experienced; while the violent and instant acceleration is the most striking feature of this cleverly designed instrument.

I am, as you are aware, riding a 5/6-h.p. .... with heavy coach-built Sidecar, fitted up with spare wheel and wind-screen complete. The Press report on this turn-out says that "It is not a fast 'bus," while one ..... agent did not hesitate to tell me that he considered the engine too powerful for sclo work but insufficient for passenger.

Up to the time I fitted the new Carburettor I must confess I all but sided with the foregoing opinions, in fact I began to wonder where the 5/6-h.p. came in; but it was left to this remarkable instrument to destroy what is now nothing but foul slander, as I have at least added ten miles an hour to my speed, while I am taking **hills at a romp** on top gear that I had NEVER under any circumstances taken on anything but second hitherto.

Notwithstanding this extraordinary power developed the engine will run so slow in "free" position that the flywheel seems scarcely revolving. In a few words, this Carburettor has worked such wonders that I can only term it the MASTERPIECE.

Its success will be phenomenal as soon as you give it to the public, but there is just one machine (the old flame) that I should dearly like to try it on, and that is the "Scott." I firmly believe that with a racing Carburettor of this particular type fitted to the "Scott" could put "paid" to the T.T., with the rest nowhere.

With repeated thanks for the opportunity you have given me, which I appreciate as a great privilege.

Believe me, Gentlemen,

Yours very truly,

R.F.G.K.

# ***Principle of the Carburettor***

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The Carburettor is an atomiser, and its object is to turn liquid petrol into a mixture of air saturated by the finest particles of fuel. This mixture has the appearance of a mist, and as soon as it comes into contact with the hot cylinder it is instantly vapourized. The more completely the petrol is atomised the more efficient and economical is the charge of gas.

The essential in carburation is to obtain the right proportion of air and of atomised petrol at varying speeds on days that may be cold or hot.

The essential aid to atomisation is high air velocity across the jet, whether the engine speed be high or low.

Fifteen years of experience have proved conclusively to our minds that:—

- (1) No powerful Carburettor can work well unless it has a Pilot Jet.
- (2) Any moving part that regulates the petrol orifice is a complication better done without.
- (3) Petrol must be filtered properly in the Carburettor.

This Carburettor has been designed with these points in view, and its simplicity in construction enables us to keep the selling price low without sacrificing quality.

The Carburettor consists of a vertical barrel divided into two vertical chambers. The main air way through the Carburettor passes at right angles through these two chambers, first through the main jet chamber and then through the pilot jet chamber, and onwards into the engine. The pilot jet chamber contains a "D" shaped throttle working up and down, the main jet chamber is like an archway containing a plunger to vary its area, and this is operated from the handlebar.

The two jets are of a non-spilling type, containing the orifice at the bottom instead of the top of the jet. The main jet is much higher than the pilot jet, and consequently the petrol level is much below the top of the main jet.

The pilot jet is situated underneath the "D" shaped throttle so that as the throttle is closed the area in which the jet is placed is reduced. A ribbon of air passes under the throttle and across the jet, so it is easy to see that as the throttle is closed the rush of air across the jet, instead of being lessened in intensity, it is maintained. The volume is, however, reduced. The more the throttle is opened the bigger is the area in which the pilot jet finds itself, and consequently the suction is lessened, because the throttle has receded from the jet plate.

The air proceeding to the pilot jet goes through the main choke tube, but at small throttle openings the velocity of air around the main jet is so low that the jet is scarcely affected. However, as the throttle is opened wider and the suction is increased, the main jet comes into operation automatically. Again the wider the throttle is opened the bigger is the air blast on the main jet, yet the intensity of the suction on the pilot jet is lessened.

A see-saw action takes place on the two jets, because the closing of the throttle lessens the suction on the main jet and increases it on the smaller pilot jet, and vice-versa.

Two suitable jets in the Carburettor, the pilot jet being much the smaller, give a practically automatic range of mixture.

The air lever operating the plunger in the main choke tube rectifies the mixture as necessity arises.

A few minutes' thought about the functioning of the Carburettor reveals the secret of slow running; namely, the fact that a minute quantity of air is drawn at a very high velocity across a tiny jet, thus ensuring that the petrol supplied is properly atomised. Power is obtained independently by having a big jet in the large choke tube, so that there is no sacrifice in having obtained good slow running.

One of the many convenient features of this Carburettor is that when closing the throttle to run in traffic the mixture is practically automatic, and there is no need to fiddle about with the air lever to keep the engine running evenly and quietly when declutched.

Fifteen years' experience is behind this Carburettor, and you can specify it for your new mount with confidence and pleasurable anticipation.

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## **OBSERVATIONS or HINTS on Possible Faults**

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**In case of difficulty, write to our Works—**

**BINKS, ECCLES, Manchester**

(Carburettors can be Repaired and Spares Supplied at Fixed Prices).

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- (a) **Jets Choked.**—This is always most unlikely, as a good filter is fitted right under the jets and the latter are designed not to choke easily.
- (b) **Flooding** is nearly always due to impurities in petrol getting into the valve seat. See that there is a filter in the petrol pipe union, and in good order.  
See that needle clip has not come out of the groove in the needle.  
Rattle float to see if float is petrol-logged.  
See that needle is not bent.  
Never grind a needle into its seat with emery; rub it in only with the finger and thumb.
- (c) **Engine will not start.**—Make certain there is a spark at the Plug points when kick starting by taking the Plug out and laying it on the cylinder head for inspection. Then tickle the float chamber so that petrol comes over the top of the Pilot Jet and wets the jet plate; open the throttle  $\frac{1}{8}$ -in., no more, and try again. It is possible to glut the engine with petrol and if no start is due to this, turn the



petrol off, open the throttle wide and turn the engine over a dozen times, then try again.

**Bad starting on Two-Stroke** is very often due to the crank case being glutted with petrol and to consequent mis-firing, which is caused by the plug oiling up. Remedy: Take out the plug, turn off the petrol, open the throttle and air wide, and kick over a dozen times; then turn on the petrol and just tickle the float, clean the Plug (in winter warm it) before replacing, and try again. If the engine does not start after half-a-dozen kicks, and you know there is the right amount of petrol, take out the plug and reclean it.

- (d) **Engine starts and will not run slowly.**—Pilot jet may be too small, or there are air leaks in induction system or in slack inlet-valve stems. Remedy: Bigger pilot jet or stop air leaks.
- (e) **Not enough power.**—If engine runs slowly do not alter the pilot jet, but fit a bigger main jet.
- (f) **Engine spits back into Carburettor when Throttle is opened gradually.**—General remedy is to close the air valve a little. However:
  - (1) Make sure there is a good supply of petrol.
  - (2) See there is no obstruction in the main jet.
  - (3) See that the level of the petrol is not more than 1/4in. below the top surface of the jet plate.
  - (4) If the above conditions are correct and spitting still obtains at one particular throttle opening it may indicate a weak phase in the mixture. If the engine runs slowly on the pilot jet, and also gives good power on the main jet this particular weak spot can be absolutely eliminated by fitting a special main jet perforated by side holes, the effective area of which is less than the main sizing hole of the jet. This particular weakness of mixture is caused by the main jet coming into

operation too late. An alternative remedy is to shorten the main jet by 1/16in., but it is better to fit a main jet with side holes which allow a small supply of petrol to add to the mixture before the main jet comes fully into operation. These jets can be obtained from our works at the cost of 1/6 each. State size wanted.

- (g) **Four or eight stroking on two-strokes at low speeds.**—Pilot jet too big.
- (h) **Fuel.**—Petrol, Benzol, or any mixture of petrol may be used.

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## **Instructions for Tuning and Driving**

**To get started in the first case:—**

(1) Open the throttle about 1/8in. so that when the engine is turning over you can hear a hiss of the air rushing through.

(2) Lower the air shutter over the main jet.

(3) Flood the Carburettor and get the engine started.

(4) When the engine has run two or three minutes on what may be a rich mixture, open the air lever to about  $\frac{3}{4}$  wide open; then get the engine to run as slowly as possible. If the engine runs on what is apparently a too weak mixture, increase the size of the pilot jet by one size. If the engine hunts and does not run better try one size smaller. The range of the pilot jet is about 3/16in. movement on the throttle. Whilst running with the throttle about 1/8in. open you can tell if the mixture is weak or strong by lowering or raising the air shutter over the main jet; if the engine runs better in the closed position it shows that the pilot jet is too small.

(5) When you have found the pilot jet that will run steadily with the air valve  $\frac{3}{4}$  open, that is  $\frac{3}{4}$  of its movement above the main jet, you can proceed to tune the main jet.

(6) Mount the machine and open up the throttle to about  $\frac{3}{4}$  of its opening. If the machine gets away all right with the air shutter  $\frac{3}{4}$  open, and runs better as you proceed to open the air valve wide, the main

jet is probably too large, and you should try one jet smaller.

(7) If, on the other hand, when the throttle is opened  $\frac{3}{4}$  you cannot get away without a lot of spitting and back-firing, which disappears if you close the shutter, this shows that the main jet is too small and you should try a larger one. [See Note F, Page 9.]

(8) For normal running the Carburettor should have the air valve about  $\frac{3}{4}$  open, so that if you open the throttle reasonably quickly when on the road the pick-up should be good.

(9) If, however, you wish to pick-up quickly from dead-slow speed on top gear, you should close the air shutter, open the throttle, and gradually open the air lever until the engine is "revving" properly.

(10) When running in town and for general purposes, the air shutter should be closed down to about half-way; when running in the country it should be very nearly wide open, and then for extreme speeds down hill it may be opened wide.

(11) The petrol level is about  $\frac{1}{4}$ in. below the top of the jet plate, therefore it is very much below the top of the main jet. This is arranged so as to retard the working of the main jet until its proper time, and to prevent petrol spilling from the main jet, which ensures economy. To start when cold the tickler in the float chamber lid should be depressed until the petrol level comes up just above the jet plate. This gives an initial rich mixture for starting.

(12) The jets can be removed by undoing the large square or hexagon adaptor, which is also a filter underneath the barrel. The jet key supplied with the spares will remove the jets.

(13) The pilot jets may number from 00 to 3, and the main jets from 5 to 9, the bigger the number the bigger the jet.

Probable jet sizes:—

**Small twins and singles:**

Pilot jet under throttle 1 or 2, main jet 6.

**Large twins and singles:**

Pilot jet under throttle 2, main jet 8.

**Small 2-strokes:** Pilot jet under throttle 0, main jet 5.

**Large 2-strokes:** Pilot jet under throttle 1, main jet 7.

If inlet valve stems are leaky use one size larger pilot jet.

## **How to obtain a BINKS Two Jet Semi-Automatic Carburettor**

When ordering your new machine  
definitely request your agent to  
specify this Carburettor. Several  
firms of the best reputation are  
already using it as an alternative  
standard, and many firms have  
expressed their willingness to fit it  
:: :: on request :: ::

**INSIST ON OBTAINING THE "BINKS."**

Retail prices:—

Carburettor for Morgan and T.B Cycle Cars ... ..	£3	7	6
Carburettor for Inlet Pipes 1 <sup>1</sup> / <sub>8</sub> & 1 dia.	£3	5	0
Carburettor " " <sup>7</sup> / <sub>8</sub> & <sup>3</sup> / <sub>4</sub> dia.	£3	0	0
Carburettor for 2 <sup>3</sup> / <sub>4</sub> Douglas ... ..	£3	0	0
Carburettor for Villiers, 150 & 250 c.c. engines ... ..	£3	0	0
Ultra Light-weight Carburettor for <sup>3</sup> / <sub>4</sub> or <sup>5</sup> / <sub>8</sub> pipes, with single lever control ...	£2	15	0

Plus 2/- Postage.

If you order a Carburettor inde-  
pendently of your machine, either  
through your agent or from us,  
please specify:—

- (1) Exact size of stump Carburettor is to fit on to.
- (2) Name, power and year of machine.
- (3) Top or bottom feed to float chamber.
- (4) Dia. of handlebar and length of cable.

Carburettors can be fitted and tuned at our works  
for 5/-.

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**C. BINKS (1920) LTD., ECCLES, MANCHESTER**