FOR MOTOR CYCLES.

Startling Improvement in Carburettors.

THE BINKS 3-JET AUTOMATIC JET-DAMPING CARBURETTOR.

1916 PATTERNS.

Advantages :

RUNS SLOWER IN TRAFFIC.

GIVES A PERFECT "TICK OVER" WHEN IN FREE.

INSTANT START.

NO FLOODING REQUIRED.

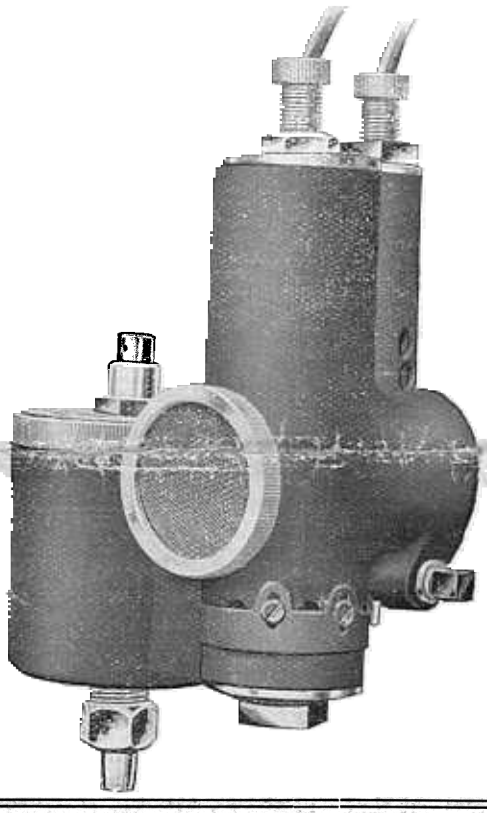
MARVELLOUS FLEXIBILITY.

VIOLENT ACCELERATION.

EXTREME POWER.

EXTREME PETROL ECONOMY.

FAR IN ADVANCE OF ALL OTHER BY REASON OF ITS CONSTRUCTION.



NOT IN COMPETITION IN PRICE WITH BIRMINGHAM GOODS.

ALL MOTOR CYCLE CARBURETTORS ARE **49/-** EACH. PLUS 15% ADVANCE DURING THE WAR, AS MATERIALS HAVE ADVANCED 100%.

SENT OUT WITH FULL INSTRUCTIONS, SIX SPARE JETS, AND KEY.

BEWARE of imitation Binks Carburettors now being put on the Market by my competitors. The 1915 Binks is a secured patent, and may not be copied. The Carburettors referred to are abandoned patterns of mine. Pilot Jets that cannot be governed from the handle-bar are useless, they either won't start or run too fast, according to climatic or weather conditions.

THE introduction of these beautifully made and efficient instruments marks probably one of the greatest improvements yet made in the modern motor cycle, and creates an epoch in Carburettor construction, **by reason of the jet-damping system and variable choke tubes.**

It is common knowledge that the **Two-Jet Carburettor** has done more to improve the running of the modern car than any other fitting, and the now recognised type having two jets and two choke tubes, allowing one or both to be used, **was an original invention introduced by us.**

We have had 15 years' practical experience in the designing and making of Carburettors, and we now offer to motor cyclists an instrument that will improve the running of a motor cycle to an extent equal to a car.

PRINCIPLES OF CARBURATION briefly and to the point. Petrol to be converted into gas should be **violently sprayed** out of a small jet and mixed with air, and to get this violent spraying action, the space round the jet called the choke tube must be very constricted, or a very large volume of air must be drawn through a much larger choke tube to give the same effect. If you have the former, you do not get a cylinder full of gas, and consequently get little power. If you have the latter, you cannot **partially** fill the cylinder with **good gas,** or in other words you **must** fill the cylinder in order to get the rush of air through the choke tube to spray the petrol **properly ;** merely closing the throttle always **reduces** the spraying of the petrol, and the more the throttle is closed, the less the spraying action, and consequently the more inefficient pulling of the engine. So in order to get fair results a medium size choke tube

C. BINKS LTD., Carburettor Manufacturers, Church St., ECCLES, Manchester.

has been employed, erring on the large size, as all motor cyclists desire their motors to go fast; now this gives a good engine at good speeds, but when going slowly in traffic the engine has no power and will not pull, and the reason it will not pull is because the rush of air past the jet is weak and flabby and will not spray the petrol, and a bad mixture is the result. **A single jet and choke tube cannot be made to do both,** and it is necessary to have **two jets and choke tubes, one for slow strong pulling and one for speed.**

Our new Carburettor has this combination in a perfect form, as it has a third or intermediary jet, which is a distinct advantage on all machines except the Scott. On this machine, however, our two-jet model seems to be better, and motor cyclists using it will get results from their motors that **hitherto they have deemed impossible,** making their engines really flexible, enabling them to pull stronger when going slow in traffic, and **enormously increasing the ease of starting,** no wasteful "flooding" being generally necessary.

Now another point. The sizes of the jets and choke tubes govern the action of all engines, and in single-jet Carburettors, better or worse results are obtained by varying one or the other; the same applies in two-jet Carburettors, so that in any Carburettor you must get the right combination, and the right combination can only be obtained by experiment on the road.

A new engine wants a different combination to one that is thoroughly "free," and no two engines of the same size want **exactly** the same. To tune an engine up **perfectly,** you will have to constantly experiment on the road, by changing these parts to ones slightly larger or smaller. You might want a score of these parts to get the really exact combination; it is a very troublesome duty taking the Carburettor to pieces each time, even if you had the parts. In the **Binks New Instrument** six jets are supplied, which can be changed about in a moment.

The Carburettors are sent out fitted with suitable jets, and the engine will start up instantly, and then you can do the final tuning-up in a short time on the road: an interesting and simple operation. Our Carburettor is designed to give **perfect results** and not merely good results. Many firms send Carburettors out that will at once give decent results, but no provision is made for **improving** these results. Our New Carburettor is sent out ready to give decent results, but **absolutely perfect** results can be almost at once obtained by the rider in a few miles spin on the road. Many riders are satisfied at the way their motors go, thinking they cannot be made to go better. What their machines are really capable of when fitted with our New Carburettor, comes as a revelation.

It is now a well-known fact in scientific circles that if you make a tube a portion of which is reduced in area (like the choke tube in a Carburettor) it is possible to make gas in water flow through it, without creating any practical loss of flow owing to the reduced area. In other words, it is possible to neutralise the bad effect of the choke tube. You **must have** a choke tube, otherwise you cannot have a sufficiently strong rush of air past the jet to spray the petrol, and this choke tube prevents you filling your cylinder with gas when going at racing speed; but by constructing it a certain way you can get almost as much gas through it as if it was not there. This fact will be appreciated by racing men and hill-climbers. We believe, if you have a machine that is tuned up to the finest possible pitch, and will do so many miles per hour with any other Carburettor, it is possible to add considerably to its speed by fitting ours.

IN ORDERING A NEW MACHINE.

Ask that our Carburettor is fitted. Some makers, while freely admitting its superiority, object to use them, solely on account of the extra cost, but it is worth while to pay an extra 15/- when you are spending £50, to get the best Carburettor it is possible to get. We will undertake the entire responsibility of its being satisfactory, or if you order your machine without a Carburettor, the makers should allow you the price of same off the invoice. You can then buy one of our instruments from us, and we will undertake to exchange it for the ordinary Carburettor if you fail to approve of it in actual use. If you will bring or send your new machine to us, we will fit it on free of charge.

Insist that our Carburettor is fitted; do not be put off with **excuses.** There is not a single modern car made to-day that is not fitted with an automatic Carburettor. If any firm were to endeavour to sell cars fitted with Carburettors in which the air had to be adjusted for every change of speed, they would be looked upon as being hopelessly out of date, and it is only a matter of a very short time when all motor bicycles will be fitted with automatic Carburettors.

We are constantly being asked, "Why don't makers fit them as a standard?" The reason of this is, that they cost twice as much as they pay for what is usually supplied, and as long as the makers can sell their output with a cheaper article, they do not like paying me twice as much for my Carburettor. The motor cycle business is so good, and the ordinary Carburettors answer the purpose to a certain extent, and do not wish to upset the routine of their works by fitting other makes of Carburettors. This is a short-sighted policy, but it exists to a lamentable extent.

It is for **you to insist** that the fitting of my Carburettor is a condition of the order. You will then **get** it, and when you have got it, and you find that you do not like it, we will willingly exchange it for a similar type of two-lever Carburettor, which would, in the ordinary way, have been fitted. A good deal of care is necessary in buying a motor cycle, if you want to get the best of everything. We are open to help you in this direction if you are in any doubt. Factories are so systemized now-a-days that the very slightest alteration causes an incredible amount of delay and extra cost, and new things can only be taken up by the public **insisting** on them. Other important inventions, like the Dunlop tyre for instance, were tabooed by the whole trade when first introduced.

C. BINKS LTD., Carburettor Manufacturers, **Church St., ECCLES, Manchester.**

IMITATIONS It is to be noted that many of our competitors, who have previously decried the 2-Jet principle as being unnecessary, are now copying it, but I am a year in advance of all others, who are now putting on the market designs that we are now abandoning as obsolete.

The one fault of two or more jets is that when you are only using one jet, petrol is being shaken out of the other and wasted, and also lost by inertia, but by means of the new **Jet-Damping Patent** this trouble is quite disposed of.

HOW IT WORKS. When the throttle is closed the jets are closed by a damper, which prevents any petrol coming out of them. When you open the throttle to get small power you uncover the small jet only, and when you want more power you uncover the main jet: no petrol **can be lost,** and in this way you save what all other Carburettors waste.

EXTRA AIR. Although when the correct jets are fitted the Carburettor is quite automatic, extra air can be let in at **any** time by the second lever.

CLEAN COOL AIR DOWN HILL. This Carburettor allows clean air to be let in running down hill with the throttle closed, thus cooling and scavenging the engine and saving petrol.

AIR BRAKE. As you can admit clean air down hill you get a very good air brake, which saves wear of brake parts, and is a great convenience.

SAVING OF FUEL. As you can run on a very small jet, owing to the high velocity past the jet at slow engine speeds, far smaller and higher than in any other, you save petrol in this way. As an idea of what can be done, we have a standard 3½ h.p. machine here that will do any distance at 20 miles per hour at a consumption of **170 to the gallon,** and 25 miles per hour at **150 to the gallon,** and yet crawl along dead slow without any suspicion of jerking or missing fire, and do nearly 70 miles per hour when opened out.

FLEXIBILITY. Owing to the high velocity past the pilot jet at low speeds, a perfectly **marvellous** flexibility is obtained, and the engine will **tick over dead slow** for any length of time, and sudden and violent acceleration obtained when the throttle is opened on the main jet. It is quite possible to walk by the machine on the road, steering it with one hand, the engine firing evenly all the time.

TICKING OVER SLOWLY WHEN ON STAND, or WHEN FREE. There is no other Carburettor that can compare with this.

NO RACING WHEN CLUTCH OUT. With this instrument you can drive along at easy speeds up to a stopping place, and take your clutch out, and the engine will not race, but just tick over a very little faster than it was doing when you were driving.

NOT LIABLE TO DERANGEMENT. It will be observed there is no sliding needle; this in my opinion is bad, as the adjustment of the needle is impossible, and rubs on the jet, making the hole larger. It is far better to use different jets, so that you can, by merely changing a jet (a minute's job) get any variation you desire. If you live in a flat country, and can do all your running on jets 000, 3, 7, and get 140 to 150 to the gallon, and, if you tour the Lake District, fit in a 9 jet in a moment, that will take you up the mountain sides with ease.

EXTRA SPEED. With the ordinary Carburettor, when you have opened your throttle wide, you have got all the speed you can, but with this instrument when going at full speed you can expand the choke tube a shade more, bit by bit, until you have got the exact power the engine is capable of.

WEAR OF THROTTLE. In other Carburettors, when the throttle and slides wear, any flexibility that they may have had vanishes; in this new instrument the wear does not matter, as the strong suction of the engine holds the throttle tight up to its face.

SIMPLICITY. The Carburettor is quite simple, and can be readily understood by anyone, and it is only by ill-usage that it can get out of order. During the lengthy tests, extending over many months, I have never had anything go wrong or stick.

2 STROKE MACHINES. These instruments are ideal for these machines, and far away better than any others. They will actually make these engines tick over slowly and run slow on the road without 4 stroking. You can get an enormous mileage from them, and more speed and power. In ordering, it is advisable to enclose an illustration of the machine taken from the maker's catalogue. Prices the same.

Mr. Robbins, a private rider, won the much coveted Manufacturers' Trophy, in the London to Edinburgh and back reliability trials, his total error being less than 39 seconds, described by "Motor Cycling" as a "Truly marvellous performance." Mr. Robbins used one of these Carburettors.

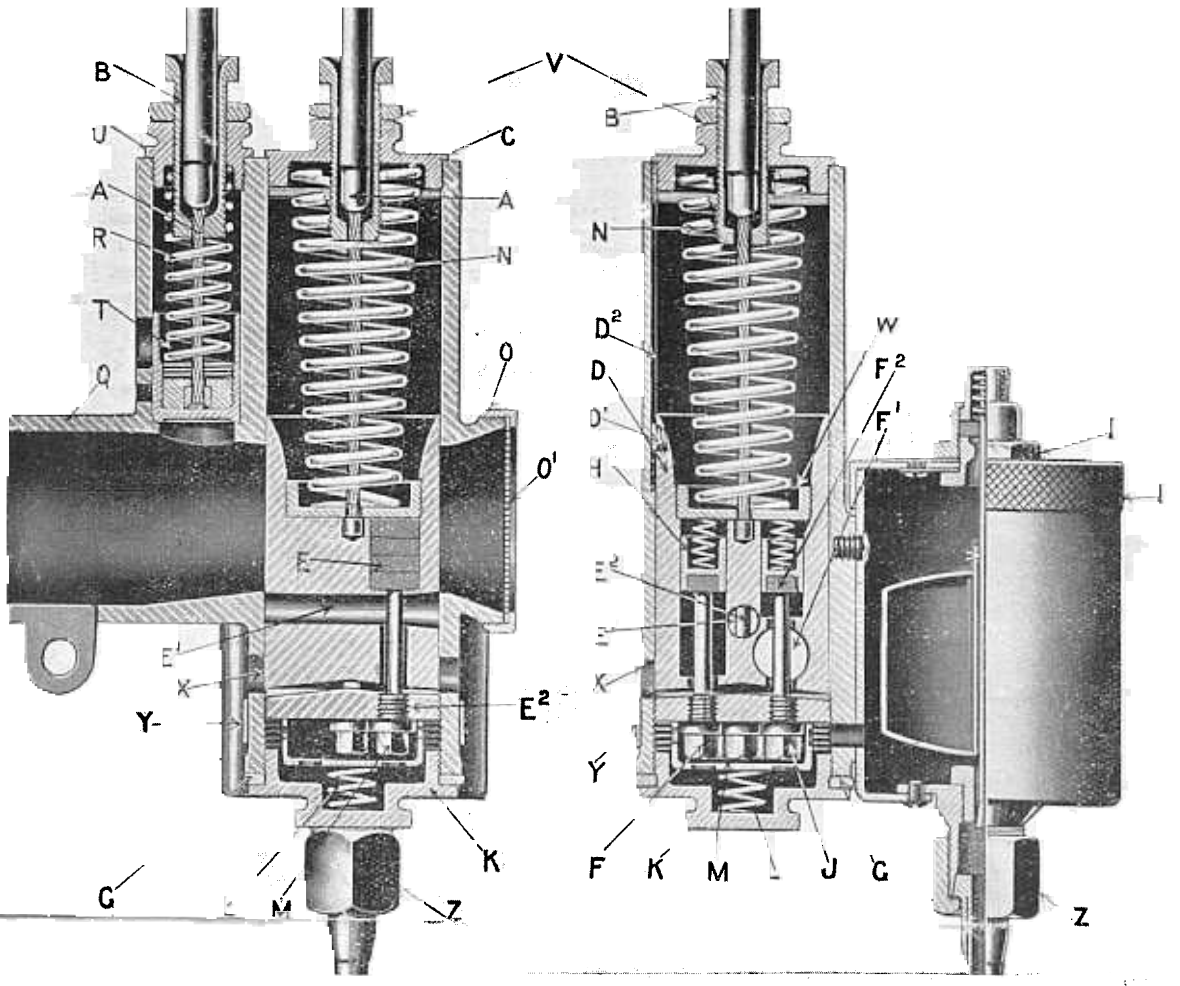
Hundreds of other events of this kind have, and are, being won on my Carburettors.

SPEED RECORDS. As you will see by the papers, the wonderful speeds obtained by Mr. O'Donovan, and others, who use these Carburettors, have beaten all records. Mr. O'Donovan, if he goes on at his present rate, will soon hold all those that can be obtained with a 500 cc. Machine. In his twelve most recent races at Brooklands, his speed was greater than has ever been accomplished on engines of much larger size.

These records show that my Carburettors are not only the most flexible but also the fastest in the World.

CAUTION. If on specifying a BINKS on your new machine, and you meet with opposition by the makers, please write to me about it. I may be able to show you that the makers of the machine you want have already approached me for a large quantity, but found my **price too high. I can help you in this matter.**

C. BINKS LTD., Carburettor Manufacturers, Church St., ECCLES, Manchester.



A Extra Air Cable.
B Adjusting Screws to get Backlash.
C Top Cap.
D Throttle.
D1 Key to guide Throttle
D2 Key-way.
E 1st Pilot Jet Damper.
E1 1st Pilot Jet Choke Tube.
E2 1st Pilot Jet.
F Main Jet.
F1 2nd Pilot Jet Choke Tube.
F2 2nd Pilot Jet Damper.
G Bottom Cap Washer.
H Main Jet Damper.
I Float Chamber Lid.
I1 Tickler.
J 2nd Pilot Jet.
K Bottom Cap.
L Filter holding up Spring.
M Filter Cup.
N Throttle Spring.
O1 Main Intake Gauze.
O Cap for same.
Q Socket to fit Carburettor on Stump.
R Extra Air Valve Spring.
T Extra Air Valve.
U Extra Air Valve Cap.
V Adjusting Screw Lock-Nuts.
W Thimble for holding Throttle Wire.
X Bottom Air Holes.
Y Clip Cover for same.
Z Petrol Connecting Nut.

Full Instructions supplied with each Instrument.

MODELS SUITABLE FOR ALL MACHINES. All 49/- each, plus 15 %.

No. 45 ... For all 3½ Single Cylinder Machines.
No. 45A ... With longer shank, for Twins over 4 h.p.
No. 45B ... With longer shank, for Twins under 4 h.p.
No. 117 ... For Twins over 4 h.p. to go between Cylinders.
No. 118 ... For Twins under 4 h.p. to go between Cylinders.
No. 47 ... For all Single Lightweights. Float Chamber on right side when looking at the air intake.
No. 78 ... For all Single Lightweights. Float Chamber on left side when looking at the air intake.
No. 46 ... Special patterns for "Douglas," 2¾ h.p. or 4 h.p.
No. 55 ... For "Williamson."
No. 45 ... For "Scotts."
No. 112 ... For "Harley-Davidson" and "Clyno," with special Induction Pipes **10/6** extra.
No. 105 ... For 5 h.p. "Indian."
No. 91 ... For 7 h.p. "Indian."
Special Racing Carburettor "Mousetrap," £5. No. 4 for Singles. No. 74 for Twins.

The above and other patterns will fit practically any machine that is made, or can easily be adapted. In the case of "Indians," I supply new induction pipe and rod control to work in conjunction with the existing Twist Grip; price **16/-** extra. This makes a fine job, and can be fitted on by anyone in half an hour.

Special Pipes for small Twin "ENFIELDS," **10/6.**

HOT AIR.

Every Carburettor ought in Winter to be fitted with a hot-air service; it saves much petrol and gives better running. I supply elbows to screw on in place of the gauze cap. Your local tinsmith can then fit you a short plated tin pipe and scoop to draw hot air off the cylinder fins. The price for all elbows for Twin Machines **9/6** each, plated; for Single Cylinder Machines, **15/-.**

Complete Hot-Air Service for "SCOTT" and all Two-Stroke Machines, **15/6.** This price includes a flexible hot-air pipe and aluminium muff. Machines like the "DOUGLAS," with the long exposed induction pipe, should always be fitted with hot-air supply in Winter and Summer.

Prices of Extra Fittings, &c., subject to 10% Increase.

For "SCOTT" Machines the improvement in running has to be seen to be believed. It is necessary to have a special connecting stump. The price of the special stump, new petrol pipe, and shields to cover up and make all look workmanlike and neat is **15/6** extra. When the old Scott Carburettor is removed the Binks can be fitted in half an hour without the use of tools, except a screw-driver and wrench, and requires no mechanical skill.

APPROVAL AND TRIAL. To enable every owner to prove my claim we send all Carburettors out on approval (when asked), and you can have same on one week's trial, and if not thoroughly satisfied you can return same carriage paid, and have your purchase money returned (less 7/6 to defray the cost of examination and re-polishing). We cannot take Carburettors back that have been damaged by ill usage. We don't call ordinary use ill usage, but damage caused by rank carelessness or accident. You can have a Carburettor sent to you to look at (not to take to pieces), and if returned **unused** in three days **by post,** your money will be returned, less 2/6 to pay for examination, packing, and office costs.

C. BINKS LIMITED, Phœnix Works, Church Street, Eccles, Lancashire.

Eccles is 4 miles from Manchester, and can be reached by Electric Car from Deansgate, Manchester. Take a Peel Green Car and get off at Eccles Theatre, which adjoins works. Visitors always welcome.

TELEGRAMS, "CARBURETED", ECCLES. TELEPHONE

TWO GOLD MEDALS AWARDED.

PEEL GREEN CARS FROM DEANSGATE, MANCHESTER, PASS THE WORKS, WHICH ADJOIN ECCLES THEATRE.

MEMO FROM

C. BINKS, LIMITED,

PHOENIX WORKS,

CHURCH STREET, ECCLES,

MANCHESTER.

MANUFACTURERS OF ENGINES, CARBURETTORS, OIL INDICATORS, SILENCERS AND GENERAL MOTOR FITTINGS.

SPECIAL ENGINES AND OTHER WORK REQUIRING ACCURACY QUOTED FOR. CONTRACTORS TO HIS MAJESTYS GOVERNMENT.

L. Fowler, Esqu, [redacted]

June 29th. 1917.

Dear Sir

Re MOTOR CYCLE CARBURETTORS.

I thank you for your valued enquiry and have pleasure enclosing the particulars you require. Few have had the experience I have had in the design, construction and riding of Motor Cycles, and the original four-cylinder Motor Cycle was introduced by me. The unique experience gained I place at your disposal with the object of improving the machine you are riding.

My three-jet Carburettors have done more to improve the running of the modern Car than any other invention, and my latest three-jet Carburettors for Motor Cycles are doing the same for this class of machine. I know why ordinary carburettors fail, and if you will read the Circulars you will see why too.

I offer you a new and perfected instrument, and it is with confidence that I ask you to send me your order. I offer to send you one so that you can examine it at home, and if you do not like it you can return it at once on the terms stated in my list.

Now when Petrol is so expensive and difficult to obtain it is more than ever important that you should use a carburettor which gives greater mileage than any other, and constant experience has shown that my carburettor is far more economical than any other.

They are very easy to fit, but if you experience any difficulty, and you will send your machine to me, I will fit it for you, or if you will send me particulars of your engine I will supply an extension branch, both at a reasonable charge, so that the carburettor will go right on without difficulty.

In order to get my Motor Cycle Sparkling Plugs more widely known, I am open to send you one or two for **2/6** each, plus 15 per cent. The regular price is **4/-**.

Awaiting your esteemed commands, and always at your service.

Yours faithfully,
C. BINKS, LIMITED,

MANAGING DIRECTOR.

Encls.—M.C. Lists.
Fuel List.

[See over]

My dear Sir,

I can probably deliver from stock provided your order is received within two or three days, otherwise I cannot give any date for delivery owing to the restrictions I am working under. As all goods now have to be sent carriage paid it has necessitated our making an all-round charge of 1/6 including box, packing and postage.

May I draw your attention to the "BINKS" Special Fuel which is well worth your consideration, and is admitted to be one of the finest substitutes on the market. For full details see fuel list enclosed.

Yours faithfully,
C. BINKS, LIMITED,

MANAGING DIRECTOR.

P.S. I make a special carburettor to suit the "Indian" as follows:-

To enable my carburettor to be properly fitted a new Induction Pipe is necessary. The price of this pipe is 12/6d. If you require the carburettor to be operated by a twist grip handle I make a very nice attachment for this which works perfectly, and the price is 6/- extra, making in all £3/14/6d. plus 15%.

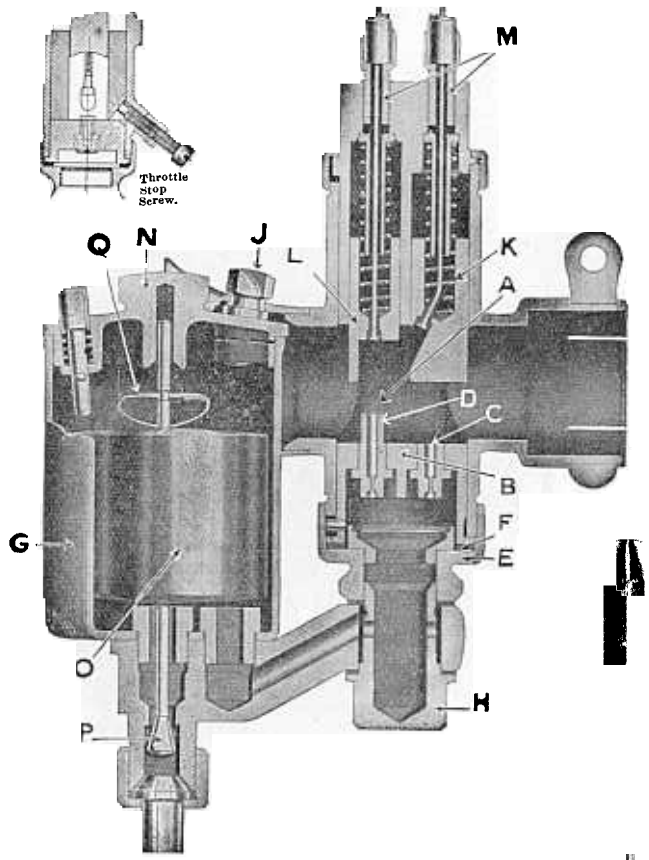
I also make a carburettor to suit the Henderson which works with a twist grip if necessary. The price of the twist grip is 6/- plus 15% extra. Cost incl. Postage £2/19/- plus 15% 5/6

I can supply you with a Carburettor for the Harley Davidson and to work with a twist grip. The price of the carburettor is £2/9/- plus 15%, and the special Harley Davidson pipe 15%- Twist Grip 6/- Plus 15% advance.

Your orders will receive my careful attention, and will be greatly appreciated.

The postage on each carburettor to America is 2/3d.

AMAL NON-NEEDLE CARBURETTER (Section View).



The above illustration also describes carburetters made in the years 1929/30/31, which were known as Binks 2 jet type.

Carburetters for small engines work on the principle described in the above illustration (see particulars page 6).

AMAL NON-NEEDLE CARBURETTER. How it Works.

The petrol tap having been turned on, petrol will flow past the Needle Valve P until the quantity of petrol in the Float Chamber G is sufficient to raise the Float O, when the Needle Valve P will prevent a further supply entering the Float Chamber.

The action of the Float can readily be understood, for, as the quantity of fuel in the Float Chamber is used, the Float O will drop, carrying with it the Needle P, and admitting a further supply.

Thus, automatically, the petrol level is kept constant.

In connection with the Float Chamber, it must be clearly understood that any alteration to our standard level can only have detrimental results.

The Float Chamber having filled to its correct level, the fuel passes along the passages through the diagonal holes in the Jet Plug H, when it will be in communication with the Main Jet D and the Pilot Jet C, the level in these Jets being, obviously, the same as that maintained in the Float Chamber.

Imagine the Throttle Valve K very slightly open. As the piston descends, a partial vacuum is created in the Carburetter, causing a rush of air through the through-way A, and drawing fuel from the Pilot Jet C. The Pilot Jet, being situated immediately beneath the base of the Throttle Valve, is subjected to a heavy depression, so as to obtain the necessary mixture for "Idling" and small loads.

In the case of the Main Jet D, which is the longer of the two, and situated near the Carburetter Air Intake, at small throttle openings it is inoperative, and the mixture is governed entirely by the size of the Pilot Jet.

The Throttle K being almost closed, it will be seen that the Pilot Jet C is situated in an extremely restricted area. In consequence, the passage of the air from the main through-way will be restricted, and at the same time a high depression will exist on the Pilot C. At this position of the Throttle, it will readily be seen that not only is the Main Jet D shrouded by the Throttle Valve, but also the area of the Mixing Chamber in which it is housed is infinitely bigger than the area of the through-way exposed to the suction of the Engine, in consequence of which no fuel is drawn from the Main Jet.

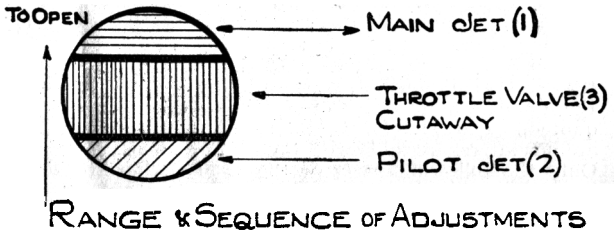
As the Throttle Valve K is raised, the area immediately above the Pilot Jet C is increased, and in consequence the suction or depression on this Jet diminishes, and at the same time increases on the Main Jet, so a balance between the two Jets is obtained throughout the whole range.

TUNING THE CARBURETTER.

There are three ways in which the quality of the mixture can be varied, and these are given hereunder in the order in which the adjustments should be made.

1. Main Jet (affects the mixture from ⅛ to full throttle).
2. Pilot Jet (affects the mixture from closed to ¼ throttle).
3. Throttle Valve Cut-away (affects mixture from ¼ to ⅛-throttle).

The following diagram clearly indicates the part of the throttle range over which each adjustment is effective.



1. **Main Jet.** Fit the smallest size Main Jet which gives maximum speed. For touring conditions we advise this to be obtained with the Air Lever three-quarter open.

2. **Pilot Jet.** This affects "slow running" and slow pulling only, and the smallest size should be selected which gives the best "Idling." At the same time, care must be taken not to reduce the size of the Pilot Jet unduly, otherwise difficulty will be experienced in obtaining a correct blend with the Main Jet.

Blend of Main and Pilot. If any trouble is experienced due to a weak spot between the Pilot and Main Jet, it can usually be cured by increasing the Pilot Jet one size.

3. **Throttle Valve Cut-away.** Richness at ⅛ to ⅛ throttle can be rectified by fitting a "Cut-away" Throttle Valve. The standard cut-aways are from "O," which is flat bottom, to No. 5, which is cut away $\frac{5}{16}$in.

Starting Up. With a *cold Engine*, depress the Carburetter Tickler, close Air Valve, open Throttle about one-eighth, ignition about three-quarter advanced, when, if the ignition system is in good order, no difficulty should be experienced in obtaining an "easy start."
With a *warm Engine* it is unnecessary to flood Carburetter but the Air Lever should be closed.
If the Float Chamber is unduly flooded, excessive richness of mixture will prevent the Engine starting. Open Throttle fully and revolve Engine smartly until excess of fuel is exhausted; then proceed as before, without again flooding.