



B. & S.
MOTOR CYCLE
CARBURETTORS

1922



HINTS & TIPS TO
MOTORS
CYCLISTS

TRADE *B & B* MARK.

MOTOR CYCLE CARBURETTORS

FOR 1922.

MANUFACTURED BY

BROWN & BARLOW
LIMITED,

CARBURET WORKS,

WITTON, BIRMINGHAM,
ENGLAND.

Telegrams "CARBURET," Birmingham
Telephone - - - East 301.
Code - As List, and A.B.C. 5th Edition.

TERMS OF BUSINESS:

Trade References or Cash with Order.
All Goods Free on Rail, Birmingham only.



Catalogue of Car
Carburettors and
Float Chambers
on application.



TRADE *B & B* MARK.

Brown & Barlow Ltd.

CARBURETTER MANUFACTURERS

Witton, Birmingham.

SEASON 1922.

Dear Sir,

In introducing our 1922 model Carburetters, we would point out that our instruments have now been before the public continuously for the past 18 years. During this period they have been developed up to their present state of perfection, and have given such satisfaction to many hundreds of thousands of riders that our trade mark "B. & B." has become almost a household word.

ALL "B & B" CARBURETTERS ARE
=====
BRITISH MADE.

being manufactured throughout in our Works at Birmingham.

We make no attempt to cheapen the Carburetter at the expense of durability and workmanship.

All parts are interchangeable one with another, and our confidence in the articles we manufacture is such that we are prepared to exchange, free of charge, any part which may prove defective (with the exception of the Cabling, which is not our make) at any time within twelve months, if purchased through our accredited Agents. All parts should be sent to our Works carriage paid, with full particulars of the date and place of purchase.

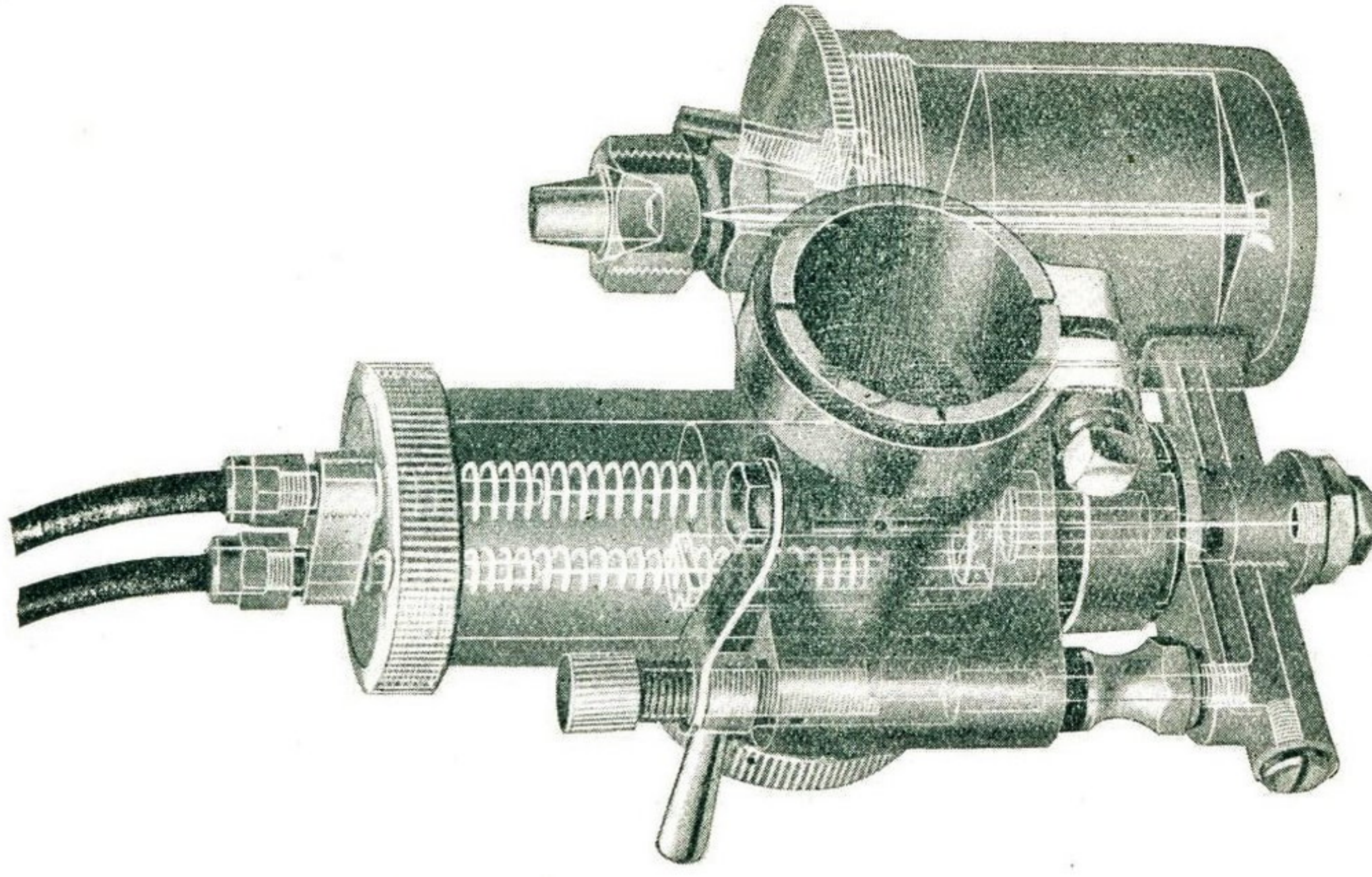
We are constantly working for real progress, and shall be only too pleased to receive suggestions at any time from users of the B & B Carburetters.

Yours faithfully,

BROWN & BARLOW LIMITED.

TRADE *B & B* MARK.

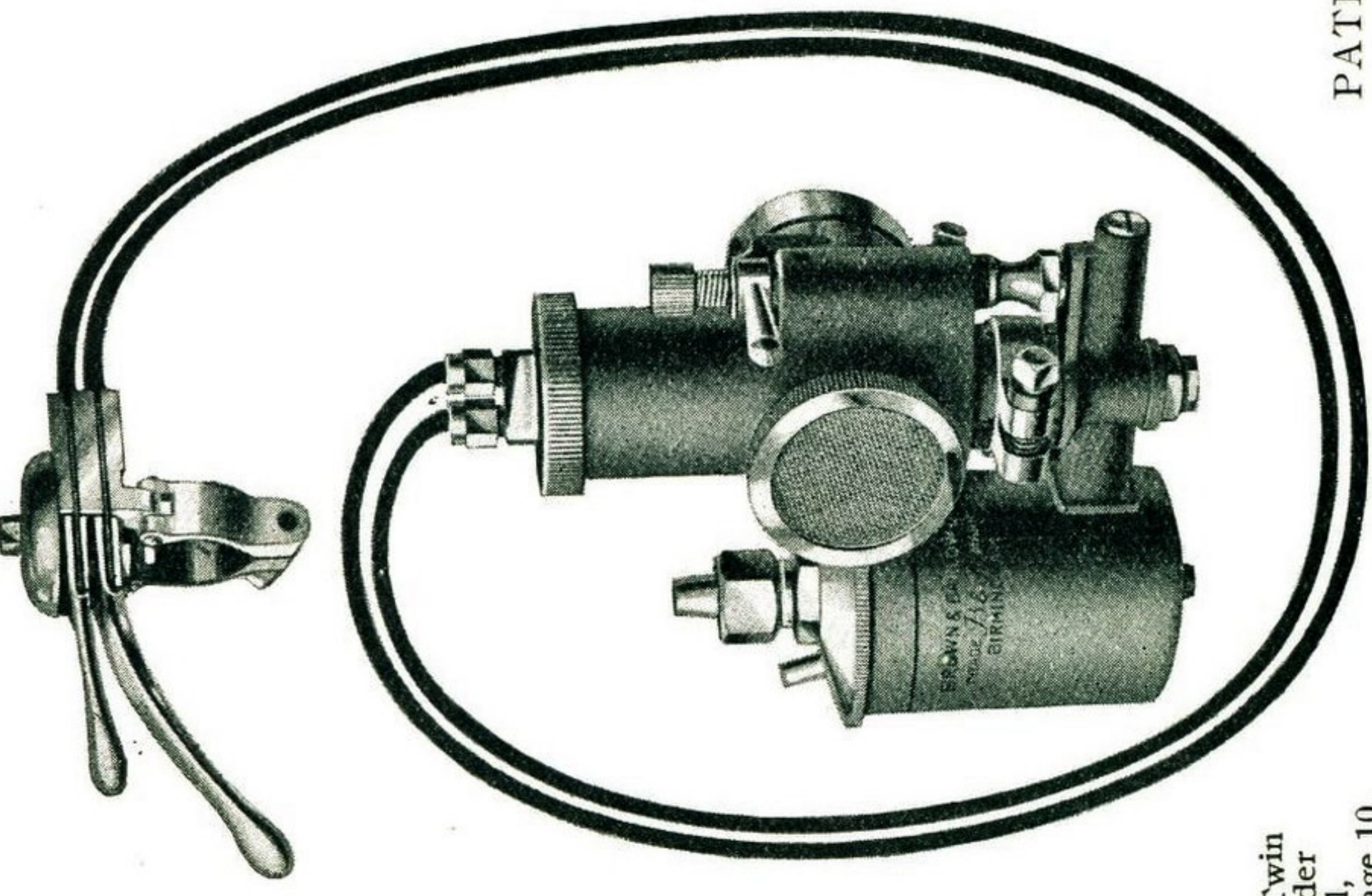
The "B & B" Carburetter.



A "GHOST" VIEW

(MODEL B.S.V.)

Description of B.S.V. (and L.S.V.) Models.



For Twin Cylinder Model, see page 10.

PATENT.

Extra length of Cable can be supplied to order.

COMPLETE AS ILLUSTRATED.

Type	Outlet	Cabling	Code.
BSV	1 3/16" or 1 1/8" Clip or Std Flange	3' 6"	NEWLY
LSV	1" or *1 1/16" Clip or Std Flange	3' 3"	NICE

(*7/8" liners can be supplied if required.)

Can be supplied with controls to work inwards or outwards as required

This Model has been designed to embody the following desirable points:—

- 1—It should be reliable in its action, simple, not readily put out of order, and easy to fit and adjust to suit the machine to which it is intended to be fitted.
- 2—It should start easily and give good economy for the power that is developed.
- 3—It should be easy of manipulation, particularly at low speeds, and it should be capable of being treated as a single-lever Carburettor when in the thick of traffic, and under these conditions it should have a quick pick-up without any necessity to manipulate the extra air lever.
- 4—It should run slowly when free. This point is particularly necessary on twin machines.
- 5—It should give the maximum possible power on the steepest hill when pulling at a moderate speed. This point is particularly essential for Side Car machines.
- 6—The Air Valve should not be unduly sensitive, but should provide for the widest possible requirements, ranging from dead slow running in the cold weather to full speed on the level on a hot day.
- 7—It should effectively break up the petrol to give a uniform mixture for ingoing air.
- 8—It should be capable of running the machine for long periods at full speed without any undue overheating and consequent knocking.

The 1922 Semi-Automatic Variable Jet Model.

A "Ghost" View of this Carburetter is given on page 3, and we recommend that this be studied in conjunction with the description.

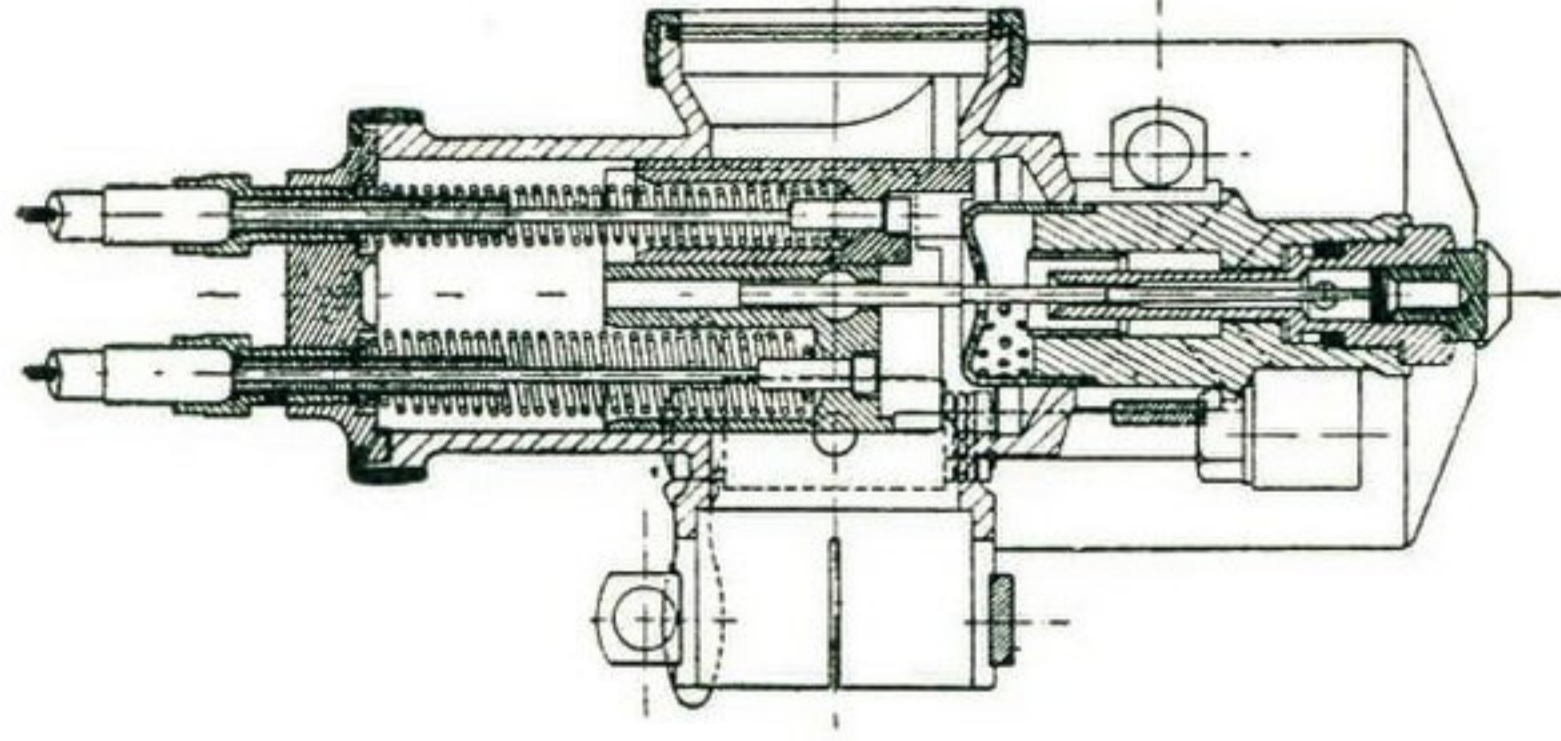
Referring to the illustration, it will be seen that this Carburetter is adapted for a double lever control, one lever of which controls the throttle, and the other the Air Valve.

The construction of the Throttle is such that when opening it, it also opens 60 per cent. of the total available amount of air, so that the maximum amount of extra air that is under control by the air valve only amounts to 40 per cent. instead of the usual 100 per cent. This 40 per cent. is the amount of variation in the air actually required to provide for the extreme conditions met with during the running. To the Throttle Valve is attached a Needle, which works in the jet so that as the Throttle is raised or lowered, the Needle is likewise raised or lowered to the same amount in the jet.

The Needle is compound in shape, namely, the first portion being parallel and after a certain distance becomes tapered, which taper continues to the end of the needle. The Jet in which the needle slides is situated in a small Choke Tube, so that a certain amount of air is taken, sufficient to break up the petrol as it issues from the orifice. Fitted in the Throttle, and completely enclosing the top of the Choke Tube is a Cap into which the petrol spray and air pass from the Jet and Choke. The Cap is provided on one side with many holes of small diameter, through which the petrol and air have to pass, and thus ensure perfect vaporisation. The Throttle is provided on the engine side with a small slot to give ease of control when running slowly.

The economy obtained with this Carburetter is good, and is in strict proportion to the amount of power developed, that is, when running on light roads along the level a small jet only is used, and when running on heavy loads up a hill a large jet is brought into operation.

FOR THE PURPOSE OF THIS EXPLANATION A SECTIONAL VIEW IS GIVEN OF THE CARBURETTER

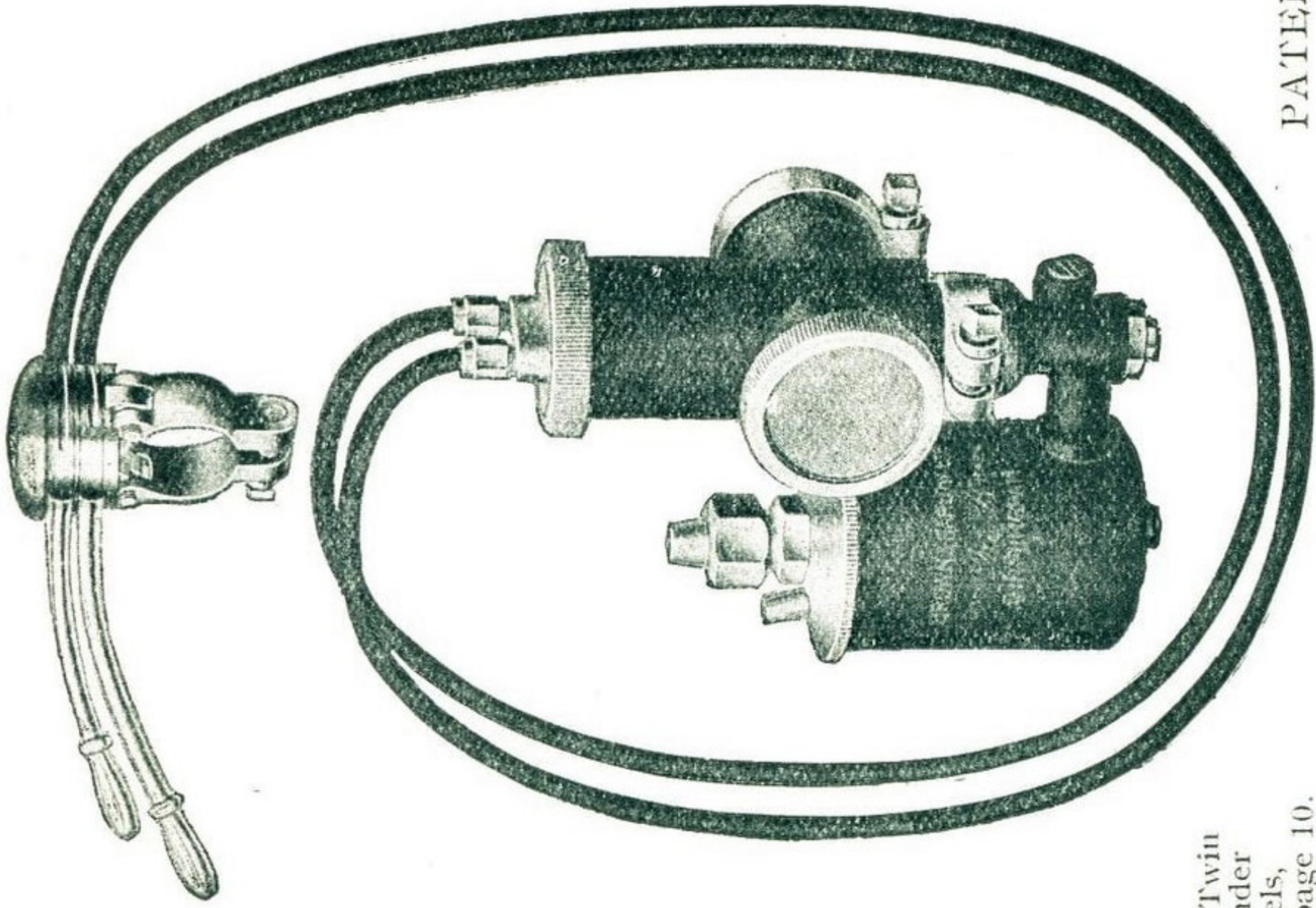


The consumption when running on an ordinary give-and-take road with average driving at between 20 and 25 miles per hour on a 3½-h.p. solo machine averages between 105 and 110 miles to the gallon. On a 6-h.p. twin machine with two up, about 70 miles per gallon is obtained, but in taking these consumptions into consideration it should be borne in mind that you have available the **largest possible Jet that can be usefully employed**, giving the maximum power on hills, yet at the same time you only have an average consumption on ordinary running of a small Jet equivalent to somewhere in the neighbourhood of 30 or 32.

On the side of the Throttle Chamber a small lever will be seen which operates the easy starting Jet. This is provided to enable the engine to be started up from dead cold without either flooding the Carburetter or priming the Cylinder.

The Carburetter (with the exception of the Pilot device) will be found to be correctly set for the majority of Engines, and we recommend that it should be fitted to the machine just as received from our works, and tested before it is interfered with in any way.

The 1922 Single Jet Model.



For Twin Cylinder Models, see page 10.

PATENT

Extra length of Cable can be supplied to order.

COMPLETE AS ILLUSTRATED.

Type	Outlet	Cabling	Code
BOD	1 1/8 in.	3ft. 6in.	BODILY
LOD	1 in. or * 1 1/16 in.	3ft. 3in.	LODE

* 7/8 in. Liners can be supplied if required.

Can be supplied with Controls to work inwards or outwards as required

The 1922 Single Jet Model,

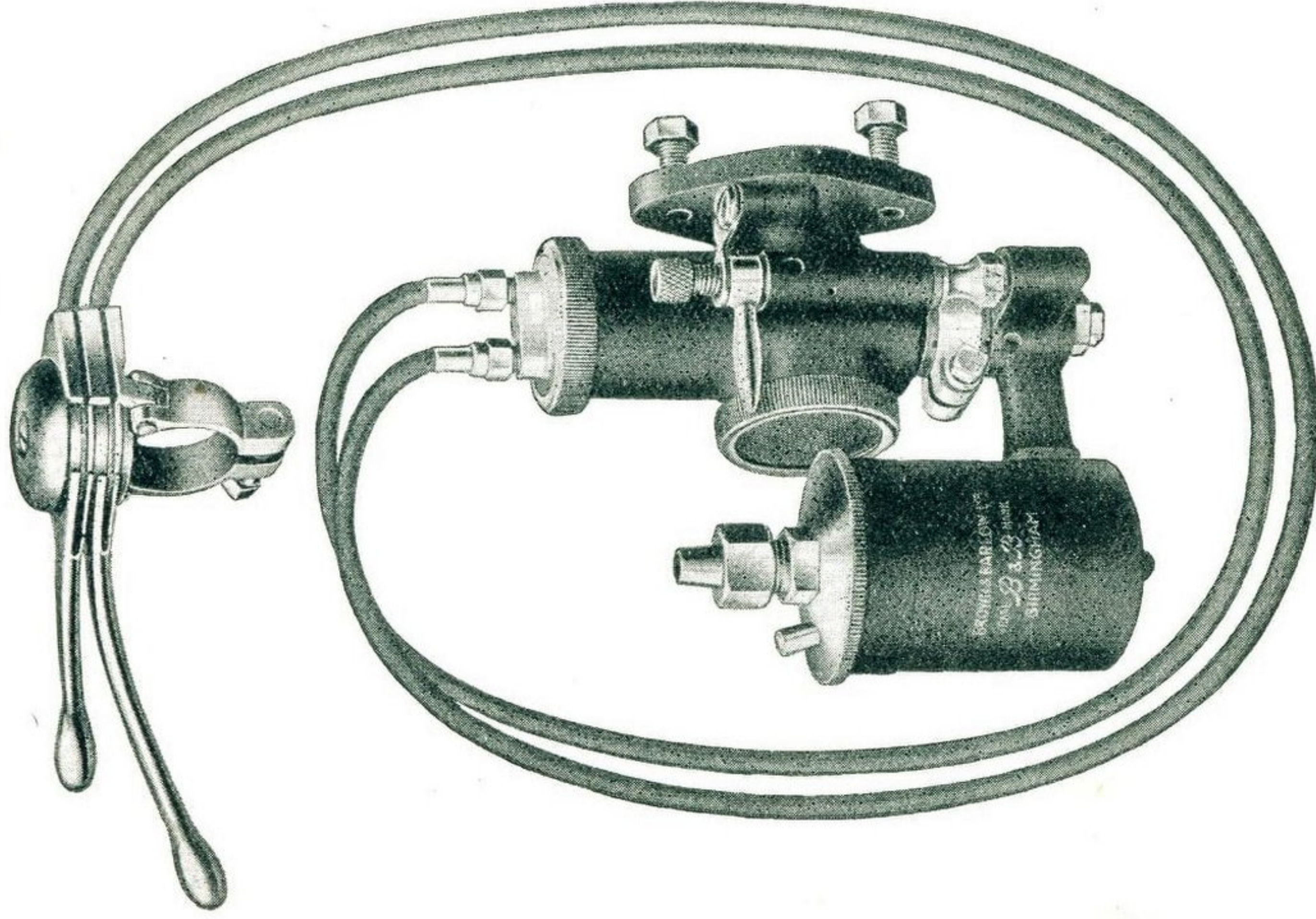
Semi-Automatic.

THIS Carburettor has been designed to meet the demand for a Carburettor, which in driving is practically automatic. When the engine is started up with this model, the air lever is thrown open to a position determined by the size of jet used. With the lever in this position the Carburettor becomes automatic and can be driven entirely on the throttle lever until the engine is subjected to an overload (such as climbing a steep hill) when it becomes necessary to close the air, more or less, to enrich the mixture. A vapourising cap completely covers the jet and choke, and is provided with numerous holes of small diameter through which the petrol and air have to pass. Perfect vapourisation is thus ensured, and blow back of petrol is greatly minimised.

The Air Valve is constructed to slide in grooves provided in the Throttle Valve, which prevents all tendency to flap with the suction of the engine. They are fitted together, and the surfaces are ground to a perfect fit in the spraying chamber.

The Jet takes out from beneath, in the same way as the previous models. This type can be supplied to special order with an extra long platform, so that it can be fitted to twin cylinder engines, thus allowing the Float Chamber to be fitted at the back of the Spraying Chamber. The outlet of the Carburettor is made to grip on to an induction pipe, 1 1/8 external diameter. A similar model, smaller than this, is made to suit engines up to 75m/m bore, and is adapted to fit on a 15/16in. pipe. These Carburettors are fitted with our new pattern Float Chamber, described on page 16, and are supplied, unless otherwise ordered with 3ft. 6in. Cables, and 1in. Clip for the handlebar. For the smaller type of Carburettor the Cables are 3ft. 3in., and are fitted with a 7/8in. Clip. Extra lengths of Cables can be supplied if desired; also 15/16in., 7/8in., or 1in. Clips.

For Twin Cylinder V Type Engines.

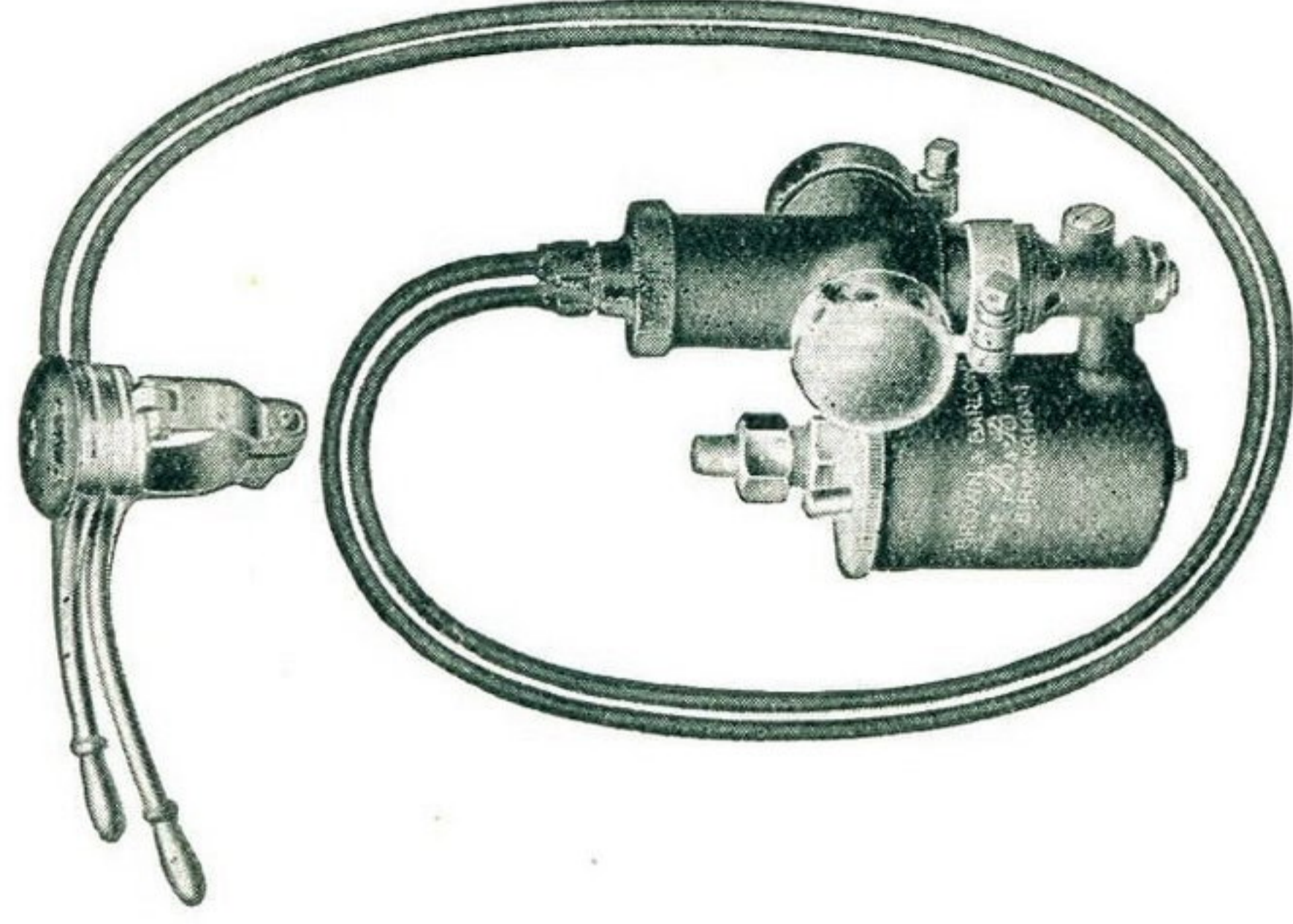


All model Carburettors are supplied on request with long platforms, to allow the Float Chamber to be fitted as shown.

When ordering, it is only necessary to add the word "LONG" to the type required (i.e., BOD long, BSV long, LUC long, etc., etc.)

The Model illustrated is Type BSV long, with Std. Flange.

The 1922 Two Stroke Carburettor.



TYPE T.O.D. Complete as illustrated.

With 3ft. 3in. Cabling.

Extralength of Cabling can be supplied to order.

Outlet— $15/16$ in. or 1in. (or with $7/8$ in. liner).

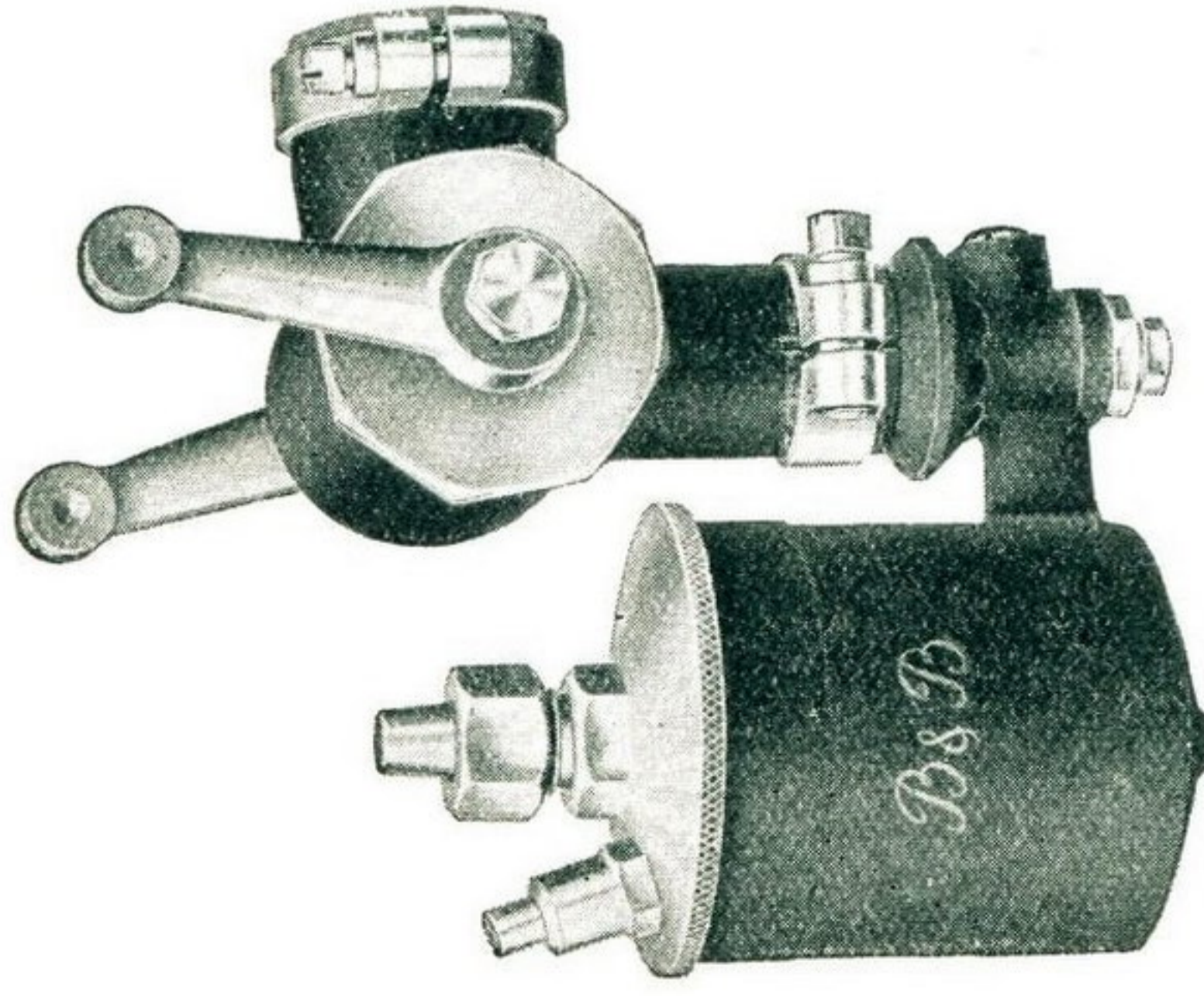
Code Word ... TOTS.

This Carburettor is practically identical with the Carburettors described on pages 8 and 9, but is specially set and adapted for use on Two-Stroke Engines.

We publish a special Two-Stroke Booklet entitled—"All About Two-Stroke," which deals very fully with this Carburettor.

Can be supplied with Controls to work inwards or outwards, as required.

The 1922 Lever Controlled Carburetters.



THESE Models are particularly suitable for Small Launch or Stationary Engines.

SINGLE JET
HORIZONTAL
OUTLET

Reg. No. 513,259

Type
MU

Effective Area of
Outlet
1in. horizontal.

Code
MUSIC.

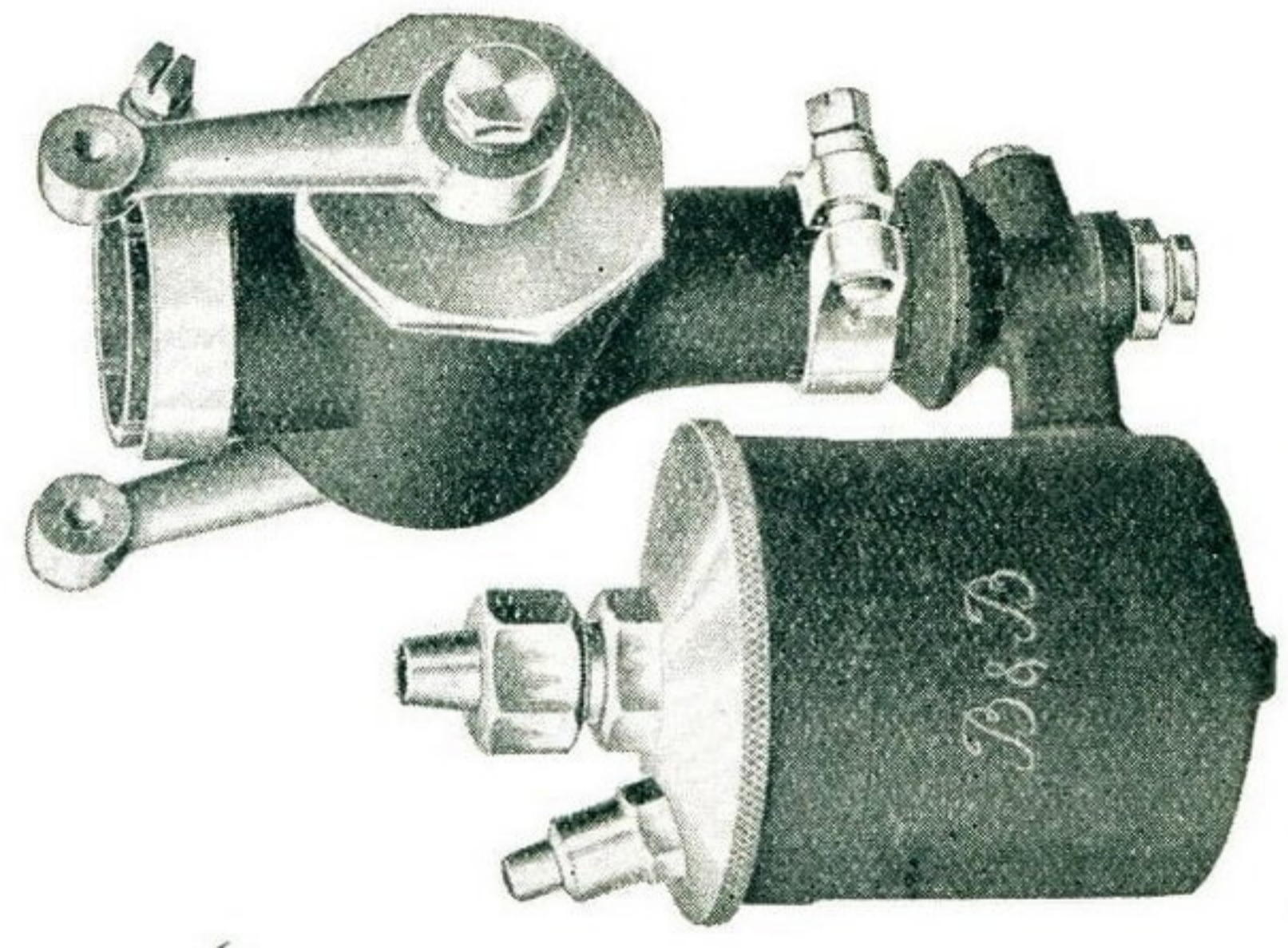
(SINGLE JET)
VERTICAL, OUTLET

Reg. No. 413,249

Type
NU

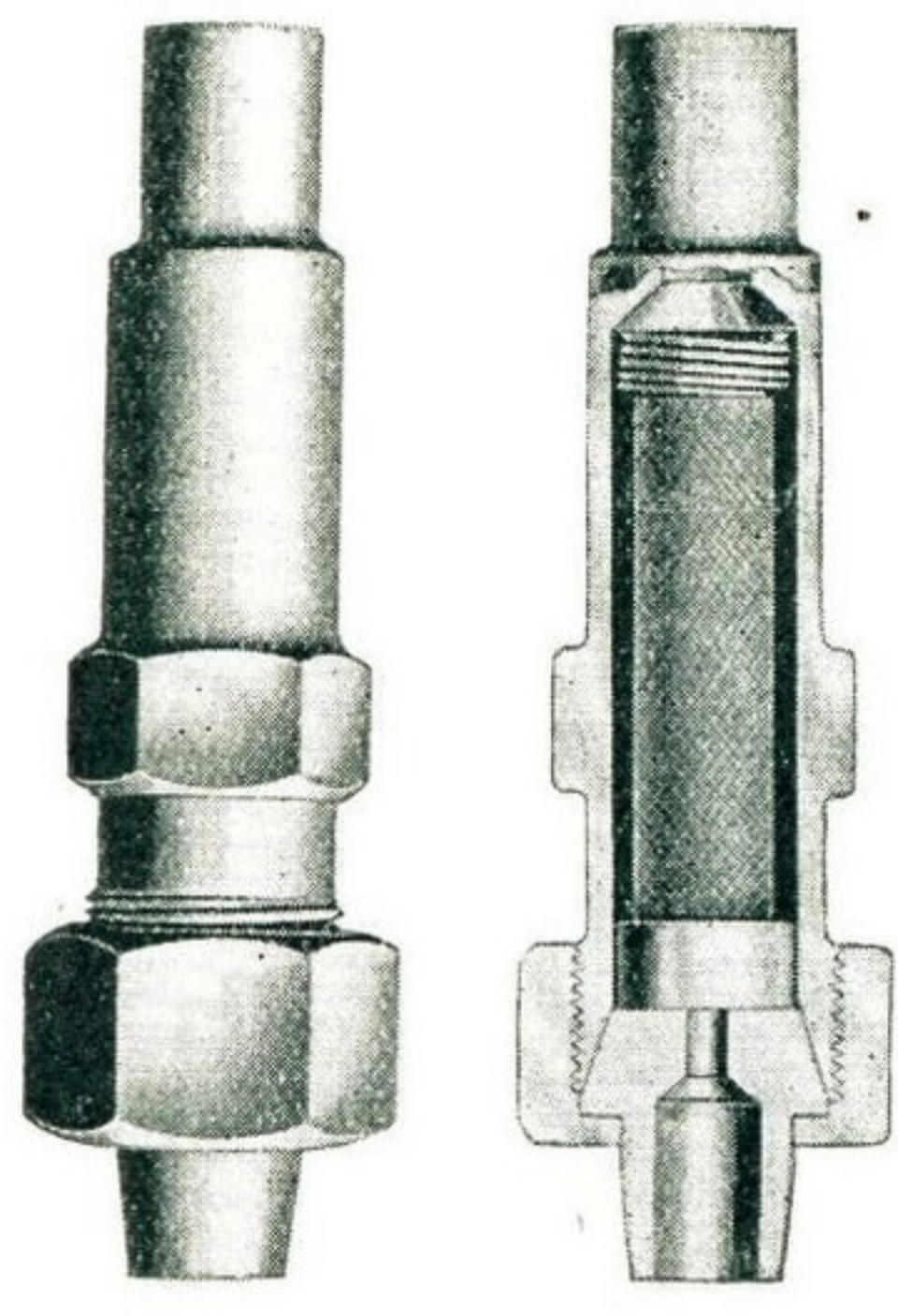
Effective Area of
Outlet
1in. Vertical

Code
NURSE



For Connections to suit above Carburetters, see page 13.

Petrol Strainer.



THE "B & B" Petrol Strainer is now supplied in two patterns, A and B.

Pattern A is designed to solder into petrol pipe.

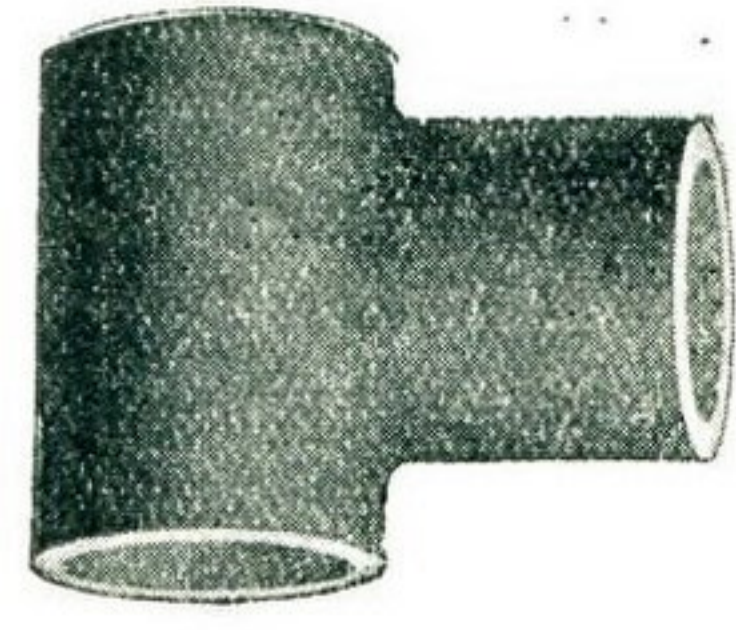
Pattern B is designed to screw directly on to the standard petrol tap (7/16in. diameter, 19 threads to the inch), as used on all modern machines.

Pattern	Code	PRICE
A	CLEAN	5/- each
B	STRAIN	5/- each

Connections.



PRICE
4/- each



Connections to suit any type of Carburetter. When ordering, the type of Carburetter should be mentioned.

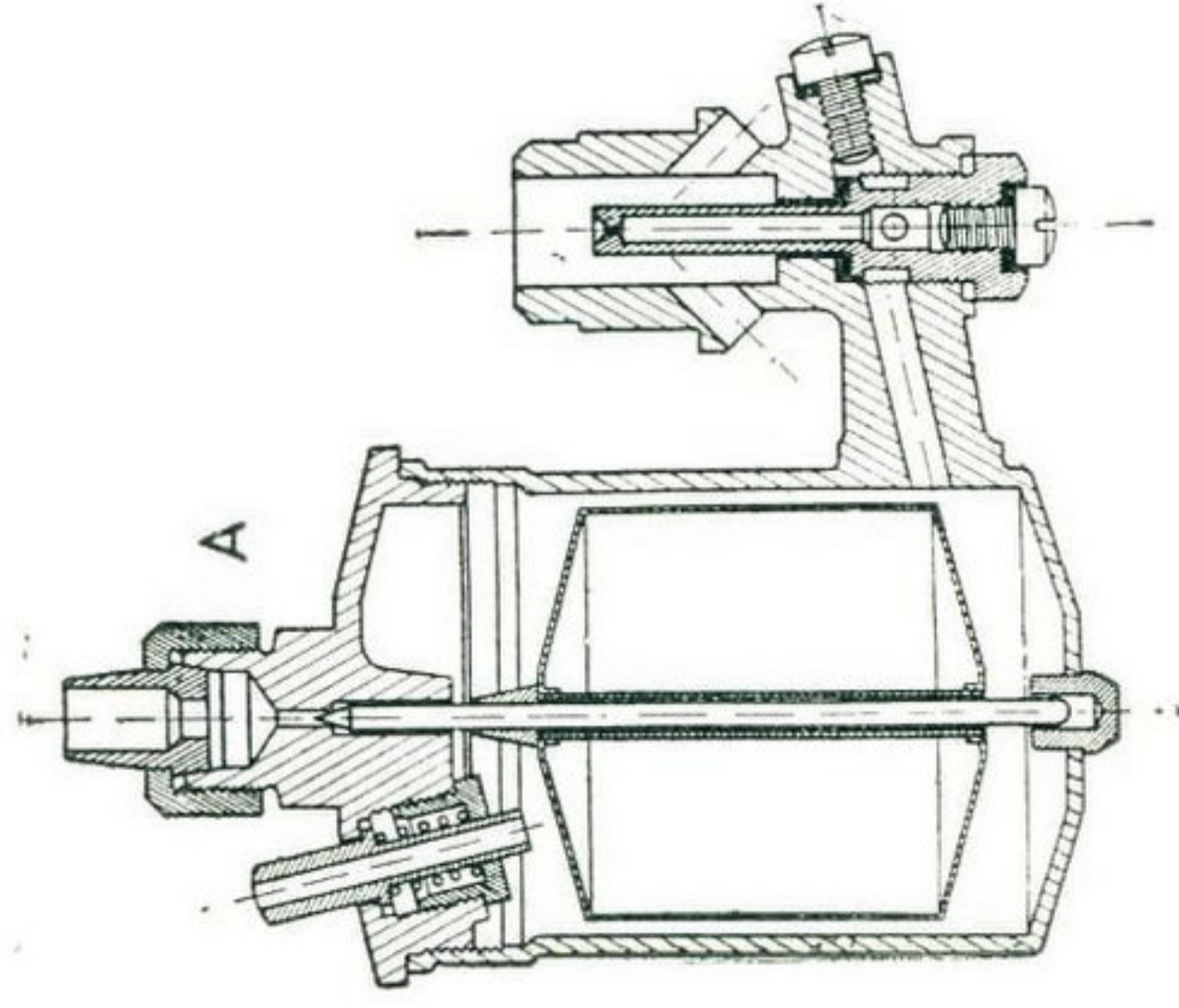
Float Chamber.

THE Float Chambers of all our Carburettors are fitted with the top Petrol Feed which was introduced in our 1915 Models with such marked success, and in their present form have reached the limit of simplicity.

Balance weights are entirely dispensed with, and the only working parts that remain are the needle and the float.

The petrol is now fed into the float chamber from the top instead of from the bottom.

A sectional illustration of the arrangement is appended which will show its extreme simplicity.



Other advantages which we claim for this system are:—

- 1.—Long life of needle.
- 2.—Cap cannot come unscrewed by vibration.
- 3.—Interior mechanism entirely eliminated (no flooding due to sticking weights or bent weight pins).
- 4.—Needle valve tends to clean itself of dirt owing to its inverted position.
- 5.—Flooding on bumpy roads through vibration entirely eliminated owing to absence of toggle weights.

“HINTS AND TIPS” For Users of the “B & B” Carburetter.

FITTING THE CARBURETTER.

1.—Always fit the Carburetter as near to the Cylinder as possible. For Twin Cylinder Engines the best position is between the Cylinders. For this purpose we supply special Twin Cylinder Models (see page 10), which obviate the necessity for using induction pipes, having a long branch for the Carburetter, which invariably cause condensation and freezing when the weather is cold.

2.—All inlet pipe joints must be gastight, and to insure that such is the case always take care that the inlet pipe is a good fit for the Carburetter outlet, and that the Carburetter is pushed right home on the pipe, otherwise air will leak in through the slots in the Clip Joint.

3.—To test the induction system for air leaks—start the engine up and run it as slowly as possible on the stand (or in “free engine.”) Then smear thick oil round the induction pipe joints, and if any leakage is taking place you will see the oil being sucked in.

4.—The Petrol Pipe should be $\frac{1}{4}$ in. diameter outside—smaller pipes frequently cause air locks.

5.—We recommend a Petrol Strainer between the Tank and the Carburetter (see page 13) but the gauze must be of ample area. The small gauze fitted in the float chamber cap of our Carburetter is provided to remove any fine particles of dirt which may escape an ordinary filter. It gives complete immunity from flooding of the float chamber caused by dirt and from choked jets.

6.—When fitting the Handle Bar Control it should be arranged that there are no sharp bends in the cables from the top of the spraying chamber cap. Sharp bends are liable to fray the outer member or the cabling, and also render the inner cabling stiff in working.

7.—The Control Cabling should not be any longer than is necessary, for if an excessive length is fitted, the loose cable is apt to sway, and so alter the position of the Throttle and Air Valves independent of the movement of the levers. The outer member of the cable should be clamped firmly to the frame wherever possible so as to prevent this. It sometimes happens that although the cables on a Carburetter are perfectly adjusted when sent out, that when fitted to the machine probably the valves do not open or close fully. An adjusting bush (No. 36) on top of the Spraying Chamber is provided for the purpose of adjusting the valves in relation to the control levers, **after** the Carburetter has been fitted to the machine. This adjustment is necessary when first fitting the Carburetter, owing to the fact that if many bends are placed in the cables the valves are apt to open independent of the movement of the levers. On the other hand, a perfectly straight cable allows the valves to go straight down, and will not allow them to open fully. The correct adjustment should be such that when the Throttle Lever and the Air Lever are in the closed position, the valves should be just closed and no more. If desired, a variation can be made from this, viz., the Throttle Valve can be adjusted so that it never quite closes, but just allows the engine to run slowly under no load.

The Float Chamber.

AS will be seen from the description on page 14, this portion of the Carburetter is now so simple and reliable that very little remains to be said.

The "tips" which are given below may assist our customers to obtain the best possible results:—

1.—The petrol level should never be altered as it is correctly adjusted and tested by us before the Carburetter leaves our Works.

2.—Flooding is caused by (a) leaning the machine so that the float chamber is raised above the level of the jet; (b) dirt from the petrol tank which has become lodged between the needle valve and its seating (this cannot happen unless the fine gauze is removed); and (c) a faulty float which has become filled, or partly filled with petrol.

3.—Petrol may drip from the float chamber also, if the jet is not properly screwed into position, or if the fibre washers on the jet have become perished or damaged.

4.—In changing a Jet it is necessary to see that the fibre washers are removed with the Jet, as, should one be left at the top of the hole and another jet be fitted, there would be two washers at the top and only one at the bottom, and petrol would leak in consequence.

5.—Never attempt to grind the needle into its seating. You will only spoil it by doing so, and probably ruin the seating as well. Flooding is very rarely due to a worn needle with our new top feed system.

6.—Flooding will take place if the Float Chamber air vent (through the Tickler) is stopped up.

7.—The petrol level is $3/16$ in. below the top of the jet, but capillary attraction always causes it to appear to be at the top of same.

8.—The Jet can be removed if required by unscrewing the large hexagon nut (No. 11, page 25) as far as it will unscrew and then withdrawing same.

(See Note No. 4 above before replacing same.)

9.—"Tickling" the float chamber raises the level of the petrol above the top of the jet and causes it to drip. This is of course intentional, and facilitates starting in cold weather, but many customers appear to lose sight of the fact that the petrol will continue to drip in this manner until the petrol level again becomes normal.

10.—A fine gauze filter is fitted under the petrol union (No. 14, page 25), and this can be cleaned by removing the petrol pipe and scraping the dirt away with a penknife blade or a pin. (Do not remove the gauze). This filter is an additional precaution, and is not large enough to allow a main filter to be dispensed with. If no other means of filtration is provided frequent choking will occur, and it is for this reason that some users persistently remove them.

When this gauze is removed occasional flooding is inevitable on account of particles of dirt which become lodged between the needle valve and its seating. (Tickling the float chamber will usually allow the dirt to pass away, but there is always a risk that this may choke up the jet.)

Single Jet Carburetter.

- 1.—This Carburetter is illustrated and described on pages 8 and 9.
- 2.—The "tuning" of the Carburetter consists of fitting a jet of such a size that full air can just be used with full throttle at very high speeds (not on hills) with the engine and weather warm. If the experiment is made in cold weather a smaller jet must be fitted in the summer time. The Carburetter then becomes practically automatic (except at very low speeds), and the air lever is used from one half to full open, according to the temperature of the atmosphere, and will only require slightly shutting for slow running, or when slowed up on a hill.
- 3.—The sizes of the jets usually required for obtaining the above results are:—

Single Cylinder Engines—Solo	...	.034"
" " " " Sidecar	.035 or	.036"
Twin Cylinder Engines—6 H.P. ....	...	.036"
" " " " 8 H.P. ....	...	.034"
Twin Cylinder Engines, up to 75 m/m bore	.028 to	.031"
Single Cylinder Engines, Lightweight	.021 to	.031"
Two Stroke Engines ...	.028 to	.030"

(See Two-Stroke Booklet).

4.—If the Gauze Screen is removed from the Airport, larger jets will be required. (The Two-Stroke Carburetter should not be used without the Dust Cap).

5.—This Carburetter will run the engine quite slowly when "free" if the air lever is properly handled, but it will usually be found that the engine will choke if any attempt is made to accelerate unless the air lever is opened a little before the throttle lever is moved. Slow running is not quite so certain as with a pilot jet carburetter, particularly on Twin Cylinder Engines.

6.—When starting up from cold the air lever should be shut and the throttle lever about $\frac{1}{4}$ open. When starting up with the engine warm it is usually better to open the air a little. It is hardly ever necessary to flood the float chamber, unless a very small jet is being used.

7.—This Carburetter is the instrument we always recommend for doubtful engines or for any engine which has to work under unsatisfactory conditions. In such cases its extreme simplicity and unlimited control ensure that the best possible results will be obtained.

Spare Jets.

We are not supplying spare jets in cases at present, but we can usually fill all demands for spare jets to suit our present and older pattern Carburetters.

When ordering please state the type and date of Carburetter, and, if the size required is not known, the name of the machine and its H.P. should be given to us as a guide.

The Semi-Auto Variable Jet Carburetter.

Types B.S.V., B.S.V. long, L.S.V. and L.S.V. long.

1.—This Carburetter is illustrated and described on pages 4 to 7.

2.—All inlet pipe joints must be quite tight as this Carburetter will not give satisfaction while air leakages occur.

3.—To obtain an easy start from the cold:—Shut air lever completely off and open throttle lever slightly. The pilot handle (No. 53) which rotates the pilot sleeve (No. 51) should then be moved to the "on" position as shown in the illustration below, which temporarily cuts off the adjustable air supply via the hole "H." The engine can then be started with the utmost ease. No "tickling" of the float chamber is necessary, and the cylinder need not be primed unless the engine is too stiff to turn (owing to congealed oil), and needs freeing.

COMBINED PILOT JET AND EASY STARTING DEVICE.



“OFF”

4. As soon as the engine has started the pilot handle (No. 53) should be moved into the “off” position as shown in the illustration, where it should remain at all times when the engine is running.

5.—To start the engine when it is already warm the above method should be followed except that the easy starting device need not be used.

6.—When it is desired to use the pilot jet for slow running it is necessary to regulate the air supply to the pilot by means of the knurled adjusting screw (No. 56) according to the instructions given below.

7.—To obtain slow running when “free” :—(a) attend to all the points mentioned under the heading “Fitting the Carburetter” on page 15; (b) screw knurled adjusting screw (No. 56) down as far as it will go. Start up engine as described in paragraphs 3 and 4, and with the engine running, screw back the adjusting screw

(No. 56), a little at a time until the engine fires slowly and evenly with the throttle lever nearly closed, and the air lever about $\frac{1}{4}$ open. (N.B.—The throttle lever will have to be closed down a little each time an adjustment is made to the adjusting screw (No. 56), as the mixture will be too rich at first to allow the engine to run with the throttle in its final slow running position. Therefore close the throttle a little until the engine slows down and fires irregularly, viz., until the mixture is too rich. Then unscrew adjusting screw (No. 56), until the engine accelerates slightly, viz., mixture becomes correct again. Repeat this procedure until the above conditions are complied with, or until you have gone a little too far with the adjusting screw, in which case a slight movement of the adjusting screw in the opposite direction will ensure correct results. The point we wish to make quite clear being that the throttle and pilot adjustments are dependent upon each other for the correct setting). When correctly set, the engine should accelerate right up with the air lever about $\frac{1}{4}$ open; and this lever will never require closing beyond that point except for starting purposes, or when climbing very steep hills.

8.—The Carburetter is not designed to run on the pilot jet alone—that is with the throttle valve fully closed off—and it cannot do so unless the engine is obtaining air via the throttle valve or from air leakage in the induction system.

The fact that an engine cannot be stopped by the throttle valve is an almost certain indication of air leaks at the induction pipe joints or up the inlet valve guides. (We are presuming that the cables are adjusted to allow the throttle valve to close).

9.—When the pilot jet is correctly adjusted the cable adjusting screw (No. 36) to the throttle valve may be unscrewed until the throttle can never completely close. The engine can thus be made to tick over with the throttle lever closed.

10.—If this new pattern combined easy starting and pilot jet be dismantled for any purpose, it cannot be re-assembled incorrectly as in earlier models. The small hole “J” should not be allowed to choke up with dirt,

as it is provided to prevent collection of petrol at the base of the pilot device, and the rubber washer (No. 57), **must seal the joint** between the base of the pilot device and the pilot jet itself (No. 52), otherwise the slow running will be impossible.

11.—**On the Road.**—Whilst the air lever should always be opened as wide as running conditions will permit, it will be found that the normal position for the lever is about $\frac{1}{4}$ open with average engines. If with the air lever in this position any knocking occurs when the throttle lever is opened up to $\frac{1}{3}$ or $\frac{1}{2}$ of its movement the ignition should be slightly retarded, and if this does not prove to be a cure the needle attached to the throttle valve should be raised $\frac{1}{16}$ " at a time until an improvement is effected.

12.—To raise or lower the Needle, slacken the screw which lies in a hole drilled in the Throttle Slide, and move the Needle up or down as required. When adjusted tighten the screw again.

13.—The raising or lowering of the Needle provides a very valuable means of regulating the jet to suit the individual rider's taste, and to adapt it to the gear ratio used between the engine and the road wheels. Generally speaking, the higher the gear the more the needle should be raised, and vice-versa.

14.—The Needle does not control the size of the jet available when the throttle is opened beyond about $\frac{2}{3}$ of its traverse. Past this point the petrol supply is governed by a restriction at the base of the jet. This "Restricted Jet" should be of such a size that full air can just be used with full throttle at very high speeds with the engine and weather warm.

15.—Having determined the maximum amount of petrol required as above to give a perfect mixture with the Throttle and Air Valves wide open, it follows that with any smaller Throttle openings (when the petrol supply is reduced by the needle) an excess of air must be available, and if under these circumstances a good petrol consumption is not obtained the driver has only himself to blame for failing to utilise the air control to the proper extent.

16.—Restricted Jets of various sizes are obtainable, and can be used if desired to increase or decrease the amount of petrol available in the "all out" position as compared with our standard setting.

Standard settings are as follows:—

Single Cylinder	(500 c.c.)	.045 Jet.
Twin	(650 to 770 c.c.)	.055 Jet.
"	(770 to 1,000 c.c.)	.050 Jet.
Small Twins and Light Weights.	.032 to .036	Jet
Scott Two-Stroke	.042	Jet

17.—Standard Settings for the Taper Needle are:—

Single Cylinder	(500 c.c.)	... 1	$\frac{13}{16}$ "
Twin	(650—1000 c.c.)	1	$\frac{29}{32}$ "
Light Weights	... ..	1	$\frac{15}{16}$ "
Scott Two-Stroke	... 1	$\frac{13}{16}$ to 1	$\frac{15}{16}$ "

18.—The measurements given as standard settings of the taper needle are taken from the recessed face of the valve to the end of the needle.

19.—It is important to remember when slowing down after a fast run (with the air well open) that it will be necessary to bring the air lever back to its normal position (about $\frac{1}{4}$ open) before attempting to accelerate. If this is neglected the engine will choke with air and stop.

20.—The Throttle lever controls about 60 per cent of the total amount of air available, and in consequence the air lever is seldom opened to the same extent as in the case of a Single Jet Carburetter. In fact it should not be possible to use full air except at high engine speeds.

21.—The Air Lever can often be opened wide while the engine is running slowly on the pilot jet, but if any attempt is made to accelerate with the air lever in this position the engine merely stops. There is no advantage to be gained by opening the air lever at such times as it is to all intents inoperative beyond its normal position, until the main jet comes into action.

22.—Do not attempt to use a Single Cylinder Carburetter on a twin, or vice-versa, as the needles, jets, and valves are different, and the results are liable to be disastrous.

23.—Choking upon acceleration off Pilot Jet is almost invariably due to condensation of petrol in cold induction pipes, but may possibly be caused through incorrect handling (see paragraph 19).

Cleaning the Carburetter.

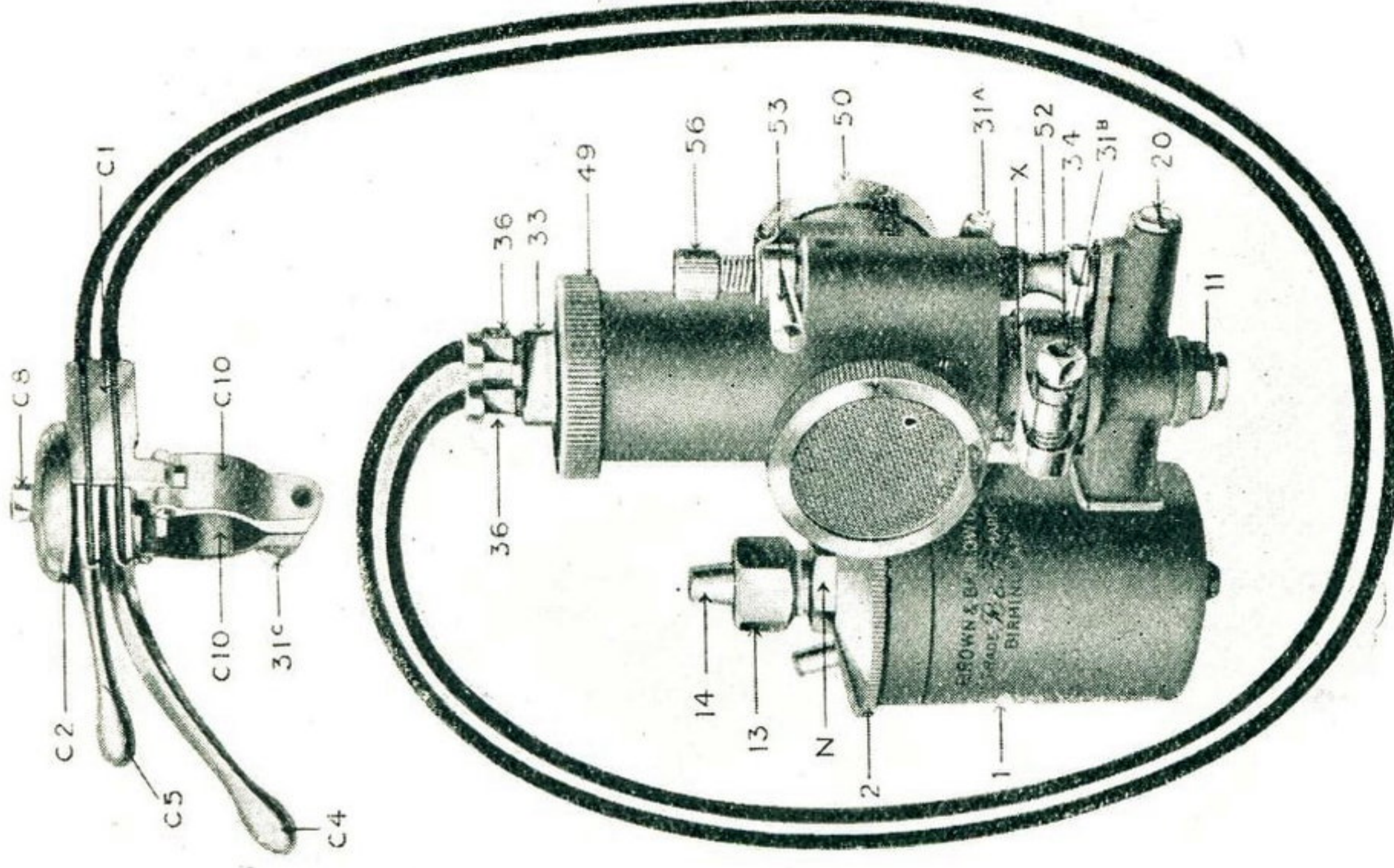
When it is desired to take a Carburetter apart for cleaning or adjustment, the following points should be noted:—

1.—The Carburetter can be removed bodily from the machine by unscrewing nut 13 (to release petrol pipe) and screws Nos. 31A and 31C, which release clips Nos. 50 and C10 respectively.

2.—By unscrewing ring No. 49, Cap No. 33 is released and may be withdrawn from the Spraying Chamber complete with valves, springs, etc., as a unit. When replacing same, care is needed to see that the valves are in the correct position, otherwise they will foul their key, and cannot slide down the spraying chamber. There is also a key on Cap No. 33, which must fall into its slot on the top of the spraying chamber before Ring No. 49 can be screwed right home again.

3.—To remove the float chamber only—unscrew Nut No. 13 (to release petrol pipe) and screw No. 31B and the float chamber can be withdrawn in a downward direction. If the Carburetter is type BSV or LSV, the valves should first be withdrawn (see paragraph 2), or the throttle lever C4 opened to its fullest extent, as there is a great danger of bending the jet needle. When the float chamber is replaced it is necessary to push this as far as it can go into the base of the spraying chamber before tightening up Clip No. 34 by means of Lockpin No. 31B. Inattention to this point causes serious air leaks at Slots X.

4.—The Float Chamber Cap No. 2 can be removed by gripping its milled edges in the hand, or, if too tight, by the use of a spanner on the Nut N. After removing the cap the needle and float can be withdrawn from the



float chamber. When replacing, see that the needle goes down into its guide at the bottom of the float chamber, or the screwing down of the cap may bend the needle.

5.—The Control Cables can be removed from the machine without disturbing the Control, by slipping the outer cables from their position in the Control Body, and then unhooking the wires off the levers. Then re-move from Carburetter end by following the instructions given in paragraph 2, and finally slipping the valves and springs off the wires and withdraw same from the Spraying Chamber Cap No. 33. When you come to

re-assemble it is necessary for the throttle valve wire to be threaded through the adjusting bush, No. 36, in Cap No. 33, which is most nearly adjacent to the key in same.

6.—Do not take the pilot jet device to pieces unless it suddenly ceases to operate. This may be caused by stoppage of the smallest hole in Sleeve No. 51.

GENERAL NOTES.

1.—The size of the Carburetter to be used should always be decided by the bore of the engine on which it is going to be fitted, and not by the Nominal Horse Power. Examples:—

A 3½-4 H.P. Single Cylinder requires a Standard Carb.

A 3½-4 H.P. Twin Cylinder requires a Lightweight "

A 5 H.P. Twin generally requires a Lightweight "

A 6 or 8 H.P. Twin requires a Standard Carburetter.

A 5-6 H.P. 4-cylinder (F.N., etc.) requires a Lightweight Carburetter.

2.—We always recommend a Single Jet Carburetter for engines in doubtful condition, or for old pattern engines, especially those fitted with automatic inlet valves.

3.—Water-Cooled Engines should always have their induction pipes jacketted and heated (preferably on the Thermo-Syphon System from the radiator or cylinder connections). Freezing and condensation are certain to occur with any make or type of Carburetter unless this is done, and the petrol consumption will be heavy as well. Customers who have carried out our advice in this respect (on Morgan runabouts, De Dions, Motor Boats, etc.) report that nearly double the mileage per gallon is obtained.

4.—Air-Cooled Engines with long and exposed induction pipes should have these exhaust jacketted.

5.—The pipes which feed the heating jackets should be ½ in. to ⅝ in. bore for water, or ⅜ in. for exhaust. Exhaust jackets and pipes must be cleaned out frequently or they will become choked with soot.

6.—It is absurd to attempt to cure freezing or condensation by wrapping up the induction pipe, as the cold is produced inside it by the vapourisation of the petrol. It is, in fact, only the heat absorbed from the atmosphere by the induction pipe which prevents freezing in the hot weather, but condensation usually takes place even then to some extent.

7.—We frequently receive letters from our customers who complain that their Carburetter gives excessive blowback. We may as well point out at once that the Carburetter is an inert object and merely responds to the vacuum produced by the engine. Therefore the Carburetter cannot blow back itself, and the fault can always be traced to the late closing of the inlet valve which may be caused by special late, or incorrect timing, or more generally to a weak inlet valve spring, or to the valve sticking in its guide. There is always a very slight "blowback" or "rebound" due to the actual closing down of the inlet valve, but this is very slight and of no consequence.

8.—Another trouble we frequently hear of is the misfiring of one cylinder in Twins. This is another complaint which cannot be laid upon the unfortunate Carburetter, as it is a physical impossibility for this instrument to supply anything but the same mixture to each cylinder. Whether the mixture is correct or incorrect it must be the same for both. The usual causes for this trouble are—Air leaks, sparking plug points too close or too wide, magneto out of order, or engine valves want grinding in.

9.—If the engine is very stiff when cold (usually due to the use of thick lubricating oil), and a difficulty is experienced in operating the kick starter smartly in consequence, a very good tip is to inject a few drops of paraffin via the compression tap immediately at the end of a run. The piston will then remain free and easy even when the engine is quite cold, and it is claimed by experts that this operation tends to decarbonise the cylinder and piston.

10.—**Knocking of Engine.** The trouble may be divided into two classes:—(a) True Pre-ignition—or Overheating — which usually results from Carbon Deposit, sparking plug points too thin, ignition too early, driving with retarded ignition, the use of unsuitable lubricating oil, driving too hard, or the use of too high a gear, the cure for which is obvious. (b) **Detonation of the Charge.** This is the knocking we obtain when attempting to pick up round a corner, or when hanging on to a high gear too long on a hill. It is caused by increased rapidity of the explosion, particularly when the piston speed is low. The obvious cure is to retard the ignition, change gear or throttle down, but it may also be avoided by rendering the mixture less explosive,

i.e., by closing the air lever and using an excess of petrol, or by using a slower burning fuel, such as benzole. The knocking caused in this manner is not due to overheating, but it is accentuated if the engine is hot.

11.—The above paragraph will explain why the drivers of over-gear machines are always complaining about their petrol consumption. They do not appreciate the fact that they are continually driving on too rich a mixture to avoid the knocking which would otherwise be inevitable.

The worst offenders are the 3½ H.P. Sidecar machines which are often driven with a gear suitable for solo riding, and as a result their petrol consumption is greater than that of a 6 or 8 H.P. Twin.

12.—We give below a list of top gear ratios which we have always found satisfactory on sidecar machines:—

500 CC Engines	...	5½ to 1	...	6 to 1
600 CC	..	5 to 1	...	5½ to 1
750 CC	..	4¾ to 1	...	5 to 1
1000 CC	..	4¼ to 1	...	4¾ to 1

and the petrol consumption one may reasonably expect from sidecar machines properly geared and handled:—

500 CC	...	60 to 80 m.p.g.
600 CC	...	60 to 80
750 CC	...	60 to 70
1000 CC	...	55 to 65

We can easily obtain higher figures than the maximum given, which must not be accepted as the limit for expert drivers.

IMPORTANT.

OUR experience is freely placed at the disposal of our Customers, and we are always pleased to advise them on all matters relating to our Carburettors. Our advice can be much more definite if full particulars are given, and we would suggest that the following information is always supplied.

Date, Make, and H.P. of Machine.

Date and Type of Carburetter.

Gear Ratio, or Top Gear Ratio if machine is variably geared.

Whether Sidecar is used or not.

APPROXIMATE ENGINE REVOLUTIONS

at different speeds - miles per hour.

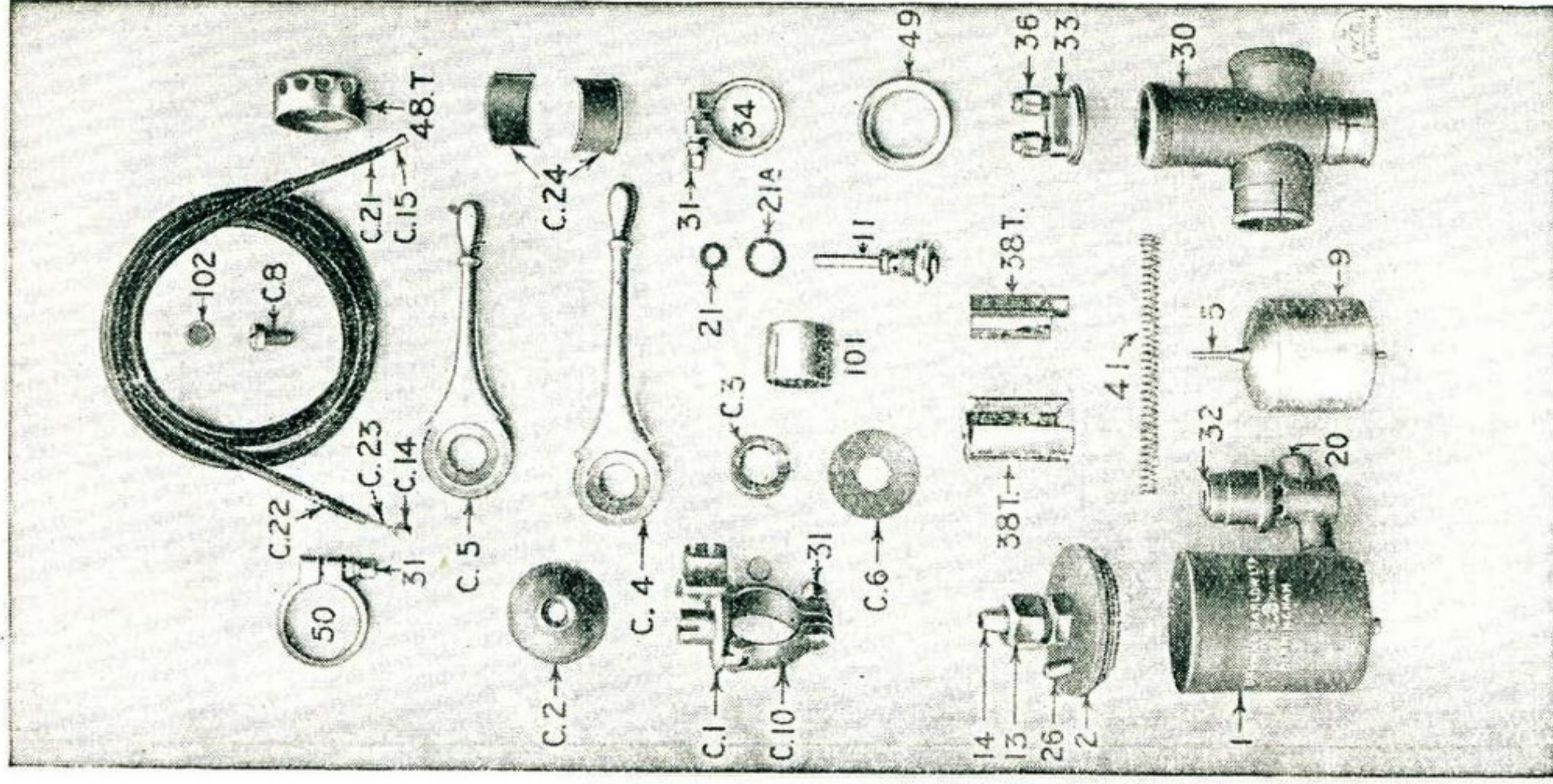
Diameter of Driving Wheels ... 26in.

Speed in Miles hour	5	10	15	20	25	30	35	40	45	50	55	60
7	453	905	1360	1810	2265	2720	3170	3620	4070	4530	4980	5440
6½	437	875	1310	1750	2180	2620	3060	3490	3940	4370	4800	5240
6	420	840	1260	1680	2020	2420	2830	3230	3640	4040	4440	4850
5½	388	775	1160	1550	1940	2320	2710	3100	3490	3880	4270	4650
5	374	748	1122	1496	1870	2244	2618	2992	3366	3740	4114	4488
4¾	358	716	1074	1432	1790	2148	2506	2864	3222	3580	3938	4296
4½	346	692	1038	1384	1730	2076	2422	2768	3114	3460	3806	4152
4	325	650	975	1300	1625	1950	2275	2600	2925	3250	3575	3900
4	309	618	927	1236	1545	1854	2163	2472	2781	3090	3399	3708
4	292	584	876	1168	1460	1752	2044	2336	2628	2920	3212	3504
4	276	552	828	1104	1380	1656	1932	2208	2484	2760	3036	3312
4	260	520	780	1040	1300	1560	1820	2080	2340	2600	2860	3120

For 24in. Wheels, multiply Revolutions by 1.08.

For 28in. Wheels, multiply by 0.93.

Spare Parts for "B & B" Carburetters.



Our Customers will save themselves both trouble and annoyance by stating accurately the type of Carburettor for which the parts are required together with its year of manufacture.

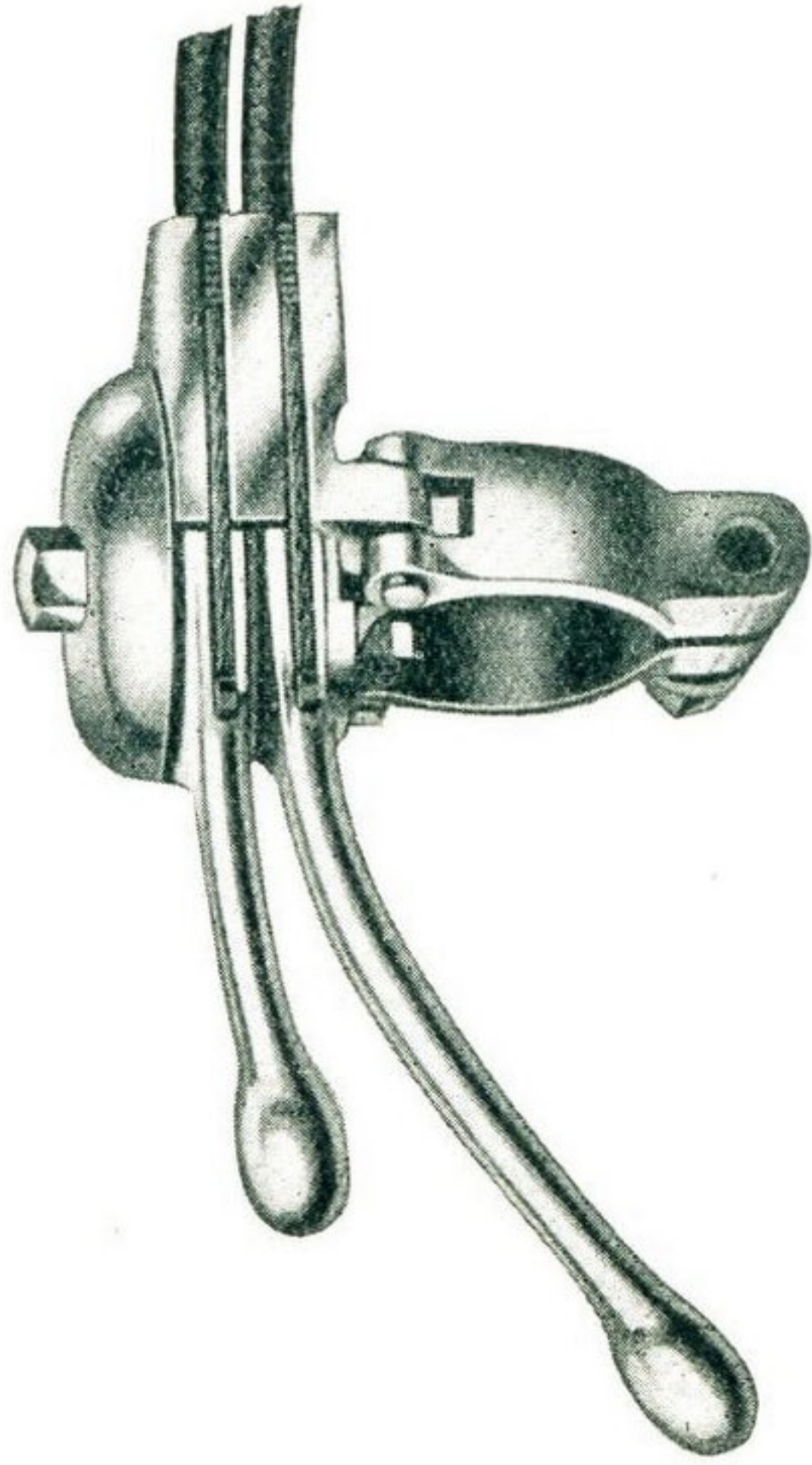
CARBURETTER PARTS.

No.		s.	d.
1	Float Chamber Body	12	0
2	Float Chamber Cap with Tickler	9	0
3	Taper Needles (B.S.V.) single or twin	2	0
4	Needle Holder (B.S.V.) with Screw	0	8
5	Needle and Collar	2	0
6	Float	3	0
11	Jet	2	0
13	Petrol Union Nut	0	9
14	Petrol Union	0	5
20	3/16in. Stop Screw and Fibre Washer	0	4
21-21A	Fibre Washer for Jets	0	2
26	Tickler complete	2	6
30	Spraying Chamber	10	0
31	Lock Pin	0	6
32	Choke Tube	1	0
33	Spraying Chamber Cap, with Bushes	3	6
34	3/8in. diameter Lock Ring with Pin	2	3
36	Adjusting Bushes, per pair	1	0
38	Valves, per pair	8	0
41	Valve Springs, per pair	2	0
48	Dust Cap (for Model T.O.D.) or Gauze Screen and Cap	3	6
49	Cap Ring for Spraying Chamber	2	3
50	1 1/4in. Clip Ring and Bolt	2	6
101	3/8in. Reducing Bush for Outlet	1	0
102	Fine Filter Gauze for Top of Float Chamber Cap	0	6
CONTROL PARTS.			
C 1	Control Body, R.H. or L.H. to order, with Clip and Bolt	6	6
C 2	Control Cap	1	6
C 3	Control Spring Washer	0	6
C 4	Throttle lever, R.H. or L.H. to order	4	0
C 5	Air Lever, R.H. or L.H. to order	4	0
C 6	Division Plate	0	4
C 7	Centre Screw	0	8
C 10	Control Clips, per pair with Rivets	1	6
C 14	Roller for end of Cable, per pair	0	4
C 15	Nipple for end of Cable, per pair	0	4
C 21	Spring Guides for Cables, per pair	0	6
C 22	Outer Cable for Control, 3ft.6in. per pr.,	4	0
C 23	Inner Wires, complete with Nipples for Controls, 3ft.6in., per pair	3	0
C 24	Liners for 3/8in. and 15/16in. Handlebars	0	8

POSTAGE EXTRA.

Handle-Bar Controls.

Right or Left Hand.



Two-Lever Control, as illustrated, complete
with Clip ... 14/-

One-Lever Control, complete with Clip,
12/-



Cables can be fitted to either Control of any length
desired to order.



Supplied to open to the right (our Standard
Pattern), or can be supplied opening to the left,
if desired.