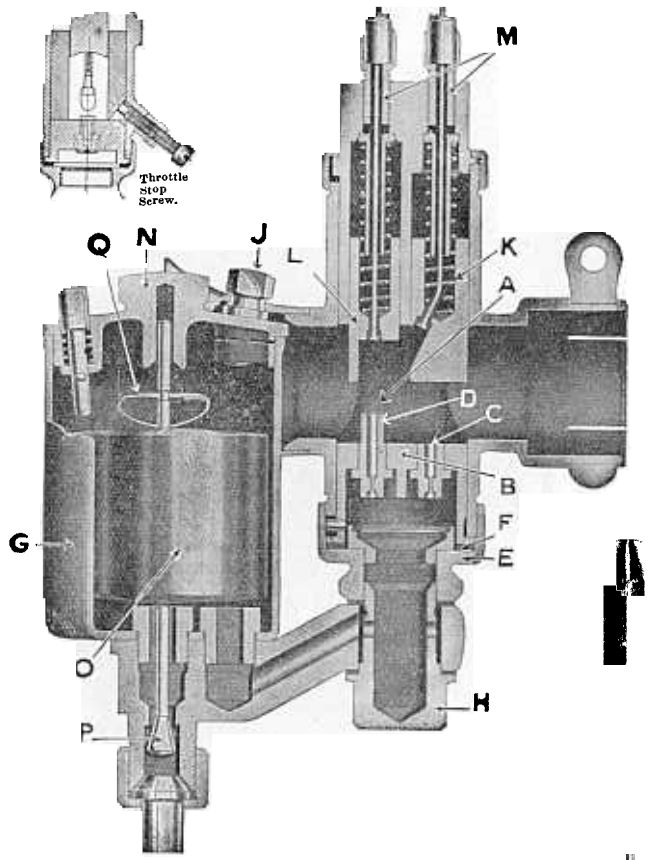
AMAL NON-NEEDLE CARBURETTER (Section View).



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.

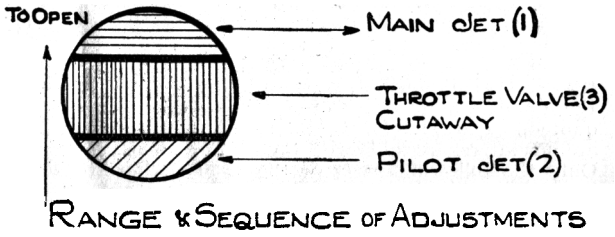
As the Throttle Valve K is raised, the area immediately above the Pilot Jet C is increased, and in consequence the suction or depression on this Jet diminishes, and at the same time increases on the Main Jet, so a balance between the two Jets is obtained throughout the whole range.

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.