Road Tests of the New B. and B. Carburetter.

SINGLE OR DOUBLE LEVER CONTROL AT WILL.

THE problem of perfect carburation at all speeds is one which claims attention from all classes of motorists; motor cyclists, therefore, will be particularly interested in the new B. and B carburetter, which has been the subject of twelve months' constant experimenting by Messrs. Brown and Barlow, of Westwood Road, Witton, Birmingham. The carburetter which we are about to describe is the result of this firm's experience with three earlier models: the standard single jet type, the universal, and the single lever automatic carburetters. The knowledge gained from these three models has enabled the firm to design a carburetter which can be treated, if desired, as a semi-automatic model, and is particularly easy to manipulate when so treated, especially at the low speeds necessary in slow moving thick traffic.

For the purpose of explanation four sectional views are given with the throttle valve in different positions. Fig. 1.—When running dead slow at no load. Fig. 2.—When on the level at about 20 m.p.h. Fig. 3.—When almost at full speed. Fig. 4.—At a point between 1 and 2.

Referring to the illustrations below, it will be seen that this carburetter is adapted for a double lever control, one lever of which controls the throttle T, and the other the air valve A. The construction of the throttle T is such that when it is opened it also uncovers 60% of the total available amount of air, so that the maximum amount of extra air that is under control by the air valve A only amounts to 40% instead of the usual 100%. This 40% is the amount of variation actually required to provide for the extreme conditions met with during running. To the throttle valve T is attached a needle N, which works in the jet so that as the throttle T is raised or lowered, the needle N is raised or lowered the same amount in the jet J. The first portion of the needle at N1 is parallel, and, after a certain distance, is tapered to the end. The jet J in which the needle slides is situated in a small choke tube C, so that a small amount of air enters at this point sufficient to break up the petrol as it issues from the orifices. Completely enclosing the top of the choke tube is a cap S, into which the petrol spray and air pass from the jet and choke. This cap is provided on one side with a number of holes S1 of small diameter, through which the petrol and air have to pass, thus ensuring perfect vaporisation. The throttle T is provided on the engine side with a small slot T1 to give ease of control when running slowly, and the corresponding part of the throttle on the other side T2 is cut away the whole width of the throttle. It will thus be seen that the air intake to the carburetter I is opened in advance of the outlet to the engine P. The proportions of the carburetter change as the throttle T is altered to suit various conditions met with at moderate speeds, this without any aid from the extra air valve A.

Taking the position shown in fig. 1, we have a very small outlet to the engine formed by the top of the slot in the throttle, and the intake side of the throttle T completely shuts off the air. Under these conditions the whole of the air required must come through the choke tube C around the jet J, and it is a comparatively easy matter to make the size of the petrol orifice (*i.e.*, space around the needle N1) correct to run the engine dead slow when free.

Now, assuming that the throttle T has been opened out to fig. 2 position, in doing this we have, during the first portion of the opening, opened the slot T1 only on the engine side of the throttle, but giving a fair amount of air on the intake to the throttle I. Thus for the first part of the movement the inlet I to the carburetter is larger than the outlet P to the engine. At the same time the needle N has been raised out of the jet J, but the area around the needle N1 has not been increased. An equivalent process, however, has taken place, viz., the frictional resistance of the fluid between the needle N1 and the nozzle J has become less, and at this point has reached a minimum, and from now onwards the area around the needle N1 increases, with a consequent increase in the flow of the petrol.

Now taking fig. 3, in opening the throttle T through position fig. 2, the outlet will begin to increase quicker than the inlet I (owing to 40% of the available space on the inlet side being occupied by the air valve A), until at posi-

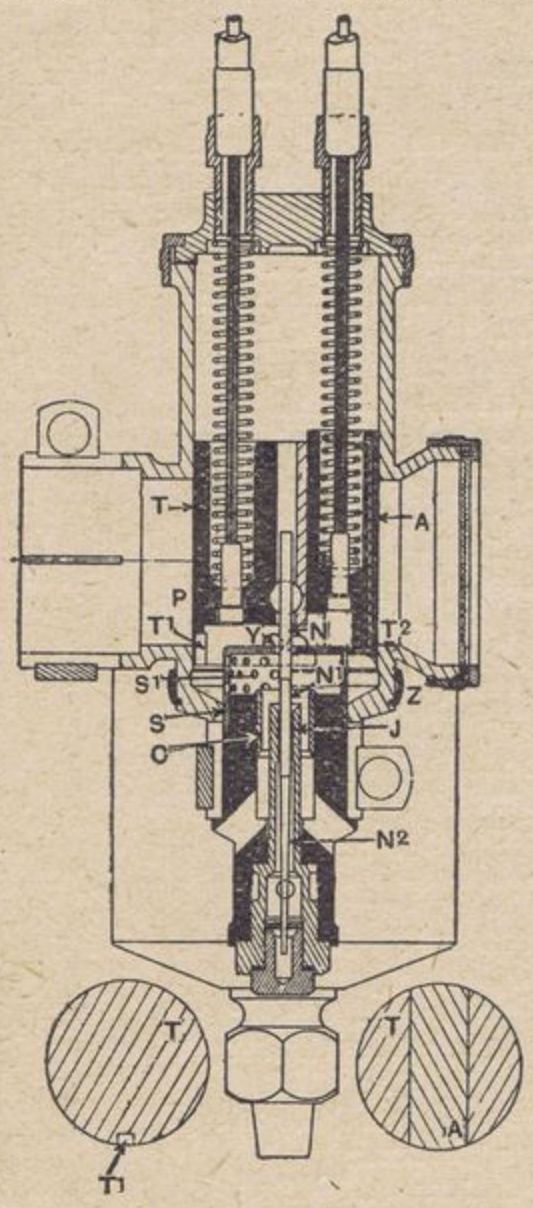

Fig. 1.

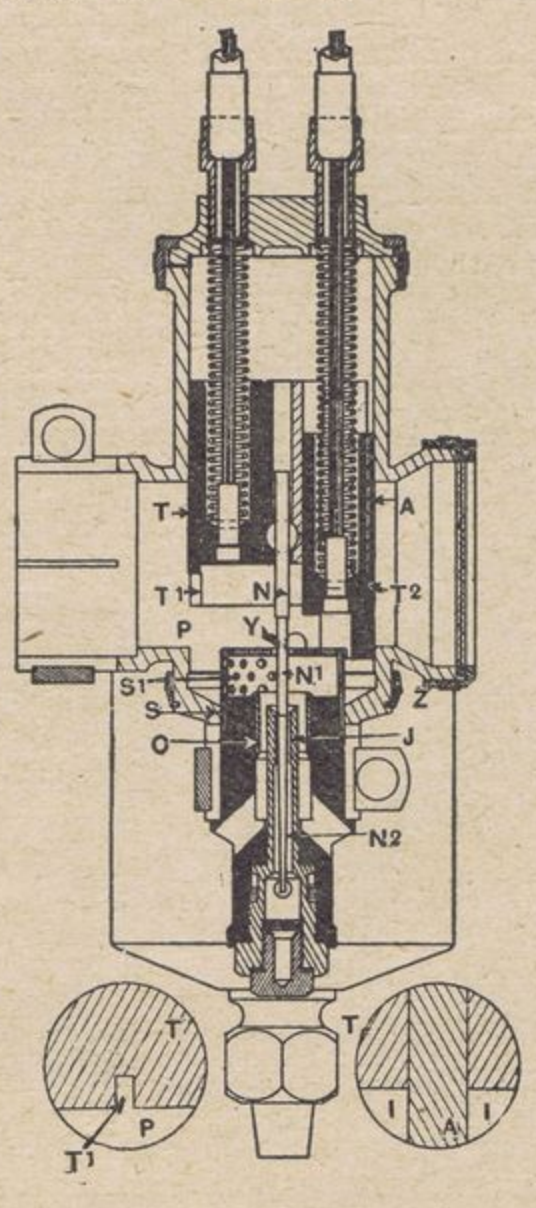

Fig. 2.

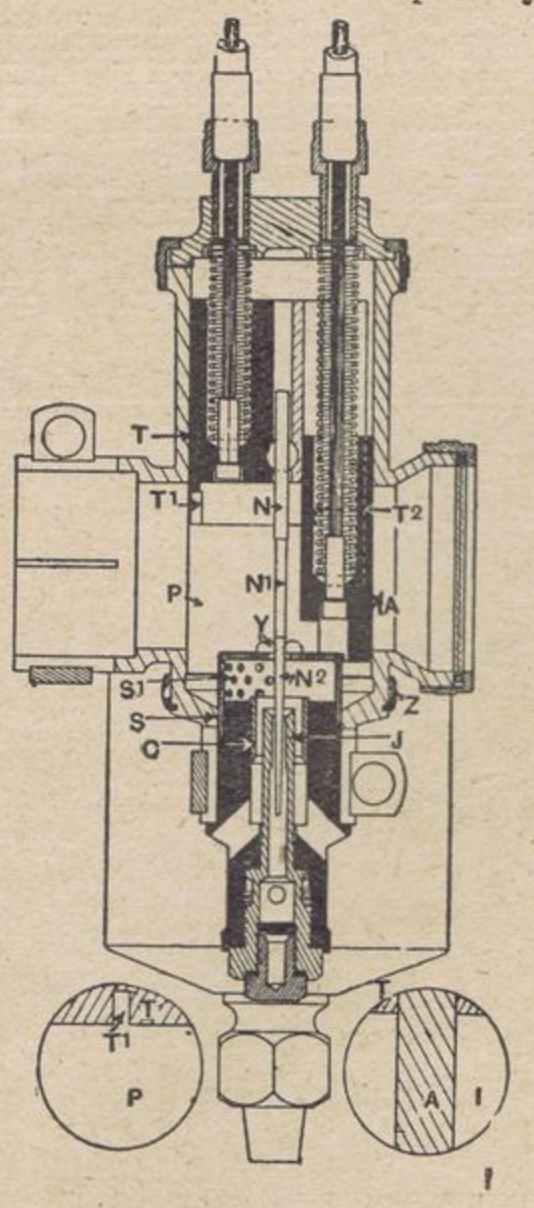

Fig. 3.

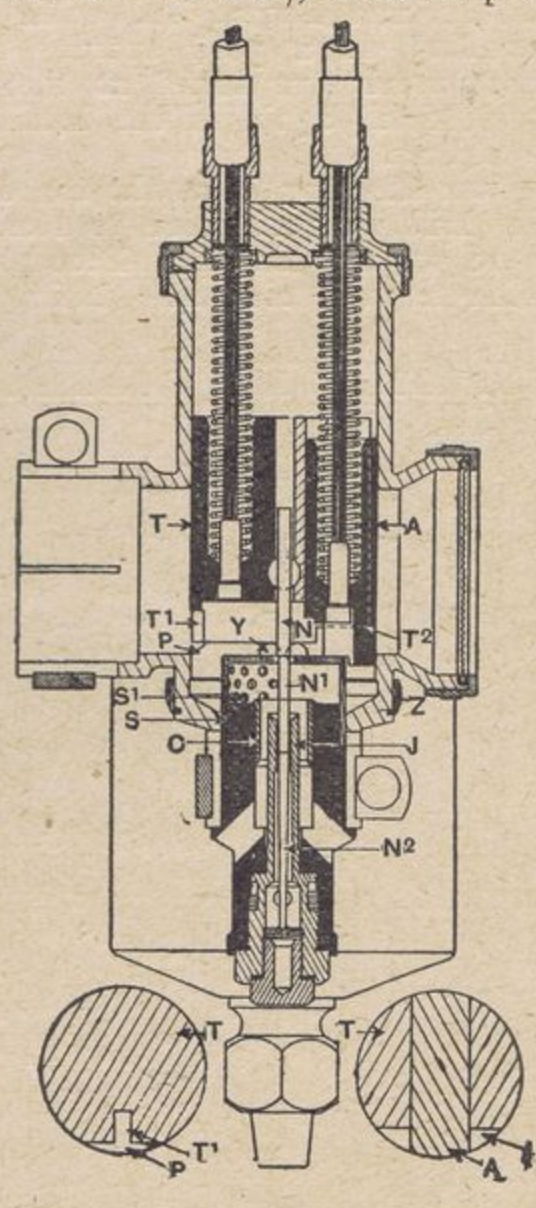

Fig. 4.

Sectional views of the new B. and B. carburetter.

(1) Carburetter set for running dead slow at no load.
(2) On the level at about 20 m.p.h.
(3) At almost full speed.
(4) At a point between Nos. 1 and 2.

A Air-inlet valve. C Choke tube. C1 Air intake. J Jet tube N Needle. N1 Parallel portion of needle.
N2 Taper portion of needle. P Outlet to engine. S Vaporising cap. S1 Holes in cap S. T Throttle valve.