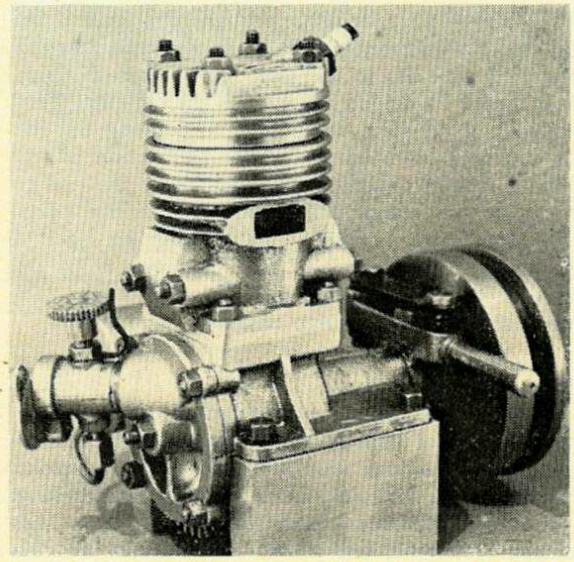
MODEL PETROL ENGINES

by Edgar T. Westbury

PART FOUR

The Busy Bee 50 cc engine

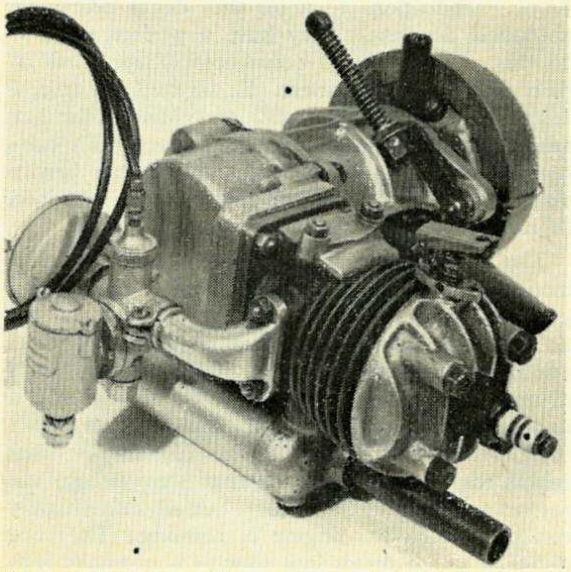
In this, the largest engine to be illustrated in the present series, the object was to assist model engineers to construct an engine of practical utility, which could be applied to the propulsion of a pedal cycle. This idea, of course, was as old as the hills, and it may be said that the first motor-cycles, or most of them, were really motor-assisted bicycles. In the days immediately after the last war, when mechanical transport vehicles of any kind were difficult to obtain, a new demand arose for small engines which could be attached to cycles. Although a great deal of ingenuity was devoted to their design and the methods of driving either on the front or rear wheel, the project was obviously doomed to



The Ensign 10 cc engine. (Fig. 9, June 2 issue.)

be short-lived, because they were bound to be superseded when more efficient and comfortable means of transport became readily available. Nevertheless, these unpretentious little engines served a very useful purpose for several years.

My contributions to these developments included several designs which were adapted to different drives, or attachment to cycles, including some ideas which were submitted for commercial production. The *Busy Bee*, however, was designed purely for individual construction in a modestly-equipped workshop. It was, in its original form, a simple three-port engine with no special features except that the main bearing housing was in the form of a bridge casting intended to straddle the bicycle wheel, carrying the engine at one end and the flywheel magneto at the other. In the centre was mounted a friction roller to make contact with the tyre of the wheel. The entire unit was spring-loaded to provide the friction pressure, but could



The original Busy Bee 50 cc engine (1⅝ in. bore × 1½ in. stroke).

be lifted by a lever to leave the wheel free when required. The only controls fitted were the throttle (the carburettor at first used was a miniature *Amal*, though a special one was designed later) and a decompressor valve in the cylinder head, both operated through Bowden cables from a single two-way handlebar lever.

The power developed by the engine proved to be ample for its intended purpose. In experiments with an early racing "kart," a tuned version with a rotary valve was produced with success. To satisfy the demand for a small stationary engine, the same internal design was adapted in the *Bumble Bee*. Many M.E. readers built the engine in one or other of its forms, and I have heard from several of them in more recent years, telling me that they have given long and reliable service. One reader said that he had renamed his engine "Charley's Aunt," because "it is still running!" Another, now living in Dublin, wrote to me recently, and told me that "my *Busy Bee*, which ran first in 1951, is still going strong. . . . I gave it a complete overhaul last winter—no replacements necessary, not even piston rings . . . the wear all round is negligible."