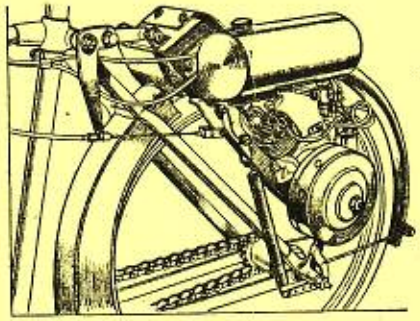
A FRICTION-DRIVE AUXILIARY

Neat, Experimental Two-stroke Unit for Attachment to Pedal Cycles

A SIMPLE yet practical self-contained engine and drive unit for attachment to a normal bicycle has been patented by Mr. C. H. Harrison, of the British Anzani Engineering Co., Ltd. (72-74, Windmill Road, Hampton Hill, Middlesex).

The unit is attached to the frame at two points, and the only extra parts required are a longer rear-wheel spindle and



A simple pivot arrangement permits the drive to be disconnected

a bolt to take the place of the usual saddle-tube pinch bolt. Links pivoting on these two points allow parallel movement on a long pressed-steel back-plate, which is normally mounted on the near side just behind and approximately in line with the fork tubes.

The 60 c.c. (bore and stroke 44.5mm. × 39mm.) two-stroke engine is mounted outside this plate, and retained by two of the crankcase bolts and the silencer bolts. On one mainshaft (outside or remote from the back-plate) is mounted the flywheel magneto, but the other mainshaft passes through the back-plate and carries a 10-tooth sprocket, which is connected by a chain to a 17-tooth sprocket on the 3in. diameter friction pulley. This pulley, which runs on ball bearings, bears on the tyre of the rear wheel, and grip is obtained by means of carefully designed splines.

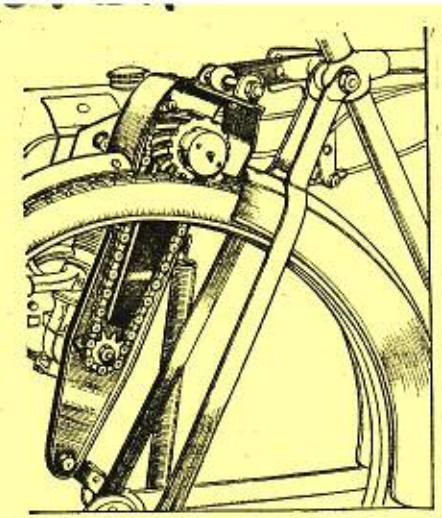
It has been stated that the engine is held to the back-plate by the silencer bolts in addition to the engine bolts; therefore, the silencer is on the inside of the plate and situated between the two runs of the chain, with the outlet towards the rear.

The carburettor is attached directly to the inlet port and fed with petroil from a small cylindrical tank which is bolted to the back-plate immediately above the engine.

Both top and bottom swivel links have a limited travel, and, since they are attached to the back-plate, move the complete unit. This arrangement is provided for disconnecting the drive; thus as the unit moves upwards the friction pulley clears the wheel.

The top link forms a right-angle, and is connected by means of a Bowden cable to a handlebar lever which has a single ratchet. When the lever is raised the unit is lifted, and the bicycle can be ridden in the normal way. At the same time, by an ingenious inter-connection of this cable with a small bell crank, the compression release is depressed, and thus the engine is stopped even if the throttle is not closed.

When the handlebar lever is released the unit drops until the friction pulley is seating on the tyre, due to its own weight and also to the action of a small coil spring fitted between an ear on the back-plate and an arm on the bottom swivel link. Other handlebar controls are the throttle and the strangler.



The drive from the engine is by chain to a grooved pulley that bears on the rear tyre

The outstanding feature of the design is the ease with which the unit can be fitted and its suitability for any pedal cycle. Another point is that the complete unit weighs only 21lb.

Normally the maximum engine speed is 5,000 r.p.m., and the gear ratio is 15.8 to 1 with a 28in. wheel and 14.7 to 1 with a 26in. wheel.

A short road test of the experimental unit clearly demonstrated its practicability. The lever which disconnects the drive was easy to operate, and when released the engine started immediately. Driving was a simple matter of throttle control, as the engine would pull comfortably at speeds lower than that at which the rider could balance. An important point is that the engine is mounted low, so that normal balance is not affected. There was no vibration, and the drive did not slip; it is understood that slip does not readily occur even in wet weather.

Production is not contemplated by the British Anzani Company owing to pressure of other business; hence the design is available to any interested manufacturer.

JUNE 22nd, 1939 MOTOR CYCLE