The "SIMPLEX AUTOMATIC"

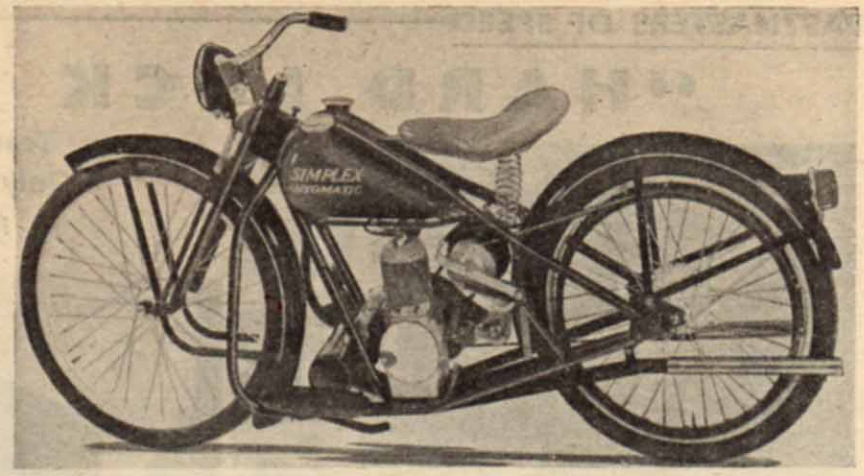
An American Lightweight Incorporating a Centrifugally Controlled Infinitely Variable Gear

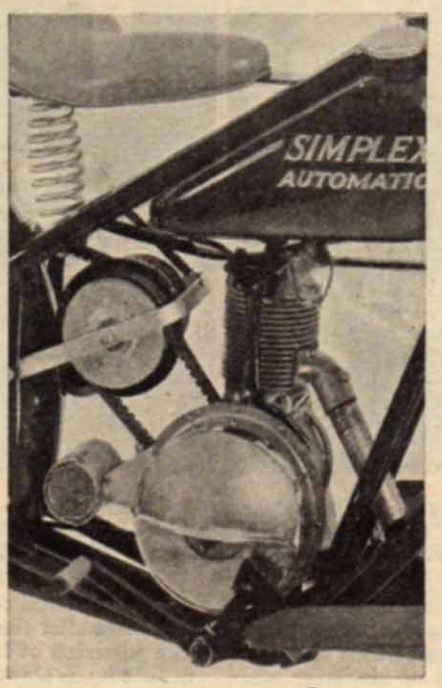
JUST ten years ago to the week, the Editor of this journal described a short test run he made on an American 7¼ cu. in. (125 c.c.) Servi-Cycle, placed at his disposal by the Commanding Officer of a Canadian Army detachment then stationed in London. No doubt many of our readers will be interested in details received by us this week of a new model introduced by the Simplex Manufacturing Corporation, of New Orleans, Louisiana, who have been producing these little runabouts since 1935.

Known as the Simplex Automatic, the new model features the traditional primary and secondary Vee-belt drives associated with this *marque*, but incorporates a most ingenious fully automatic, infinitely variable gear in place of the pedal-operated system hitherto in use whereby the inner flanges of the two pulleys were moved transversely, thereby contracting one pulley and expanding the other, thus raising or lowering the gear.

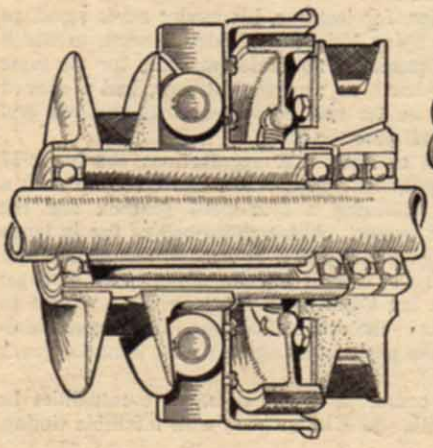
The accompanying sketches illustrate the working principle of the new countershaft device. It will be seen that the primary pulley is now a one-piece, fixed-flange job revolving on a double-row SKF ball bearing. To the inner face of the pulley is bolted a back-plate carrying a pair of spring-loaded brake shoes. Mounted on a separate sleeve member, which is supported at each end by a ball bearing, is a brake drum. To this are bolted two arcuate-slotted members in which are free to slide dumb-bell-shaped governor weights. These weights are in constant contact with the inner, sliding flange of the secondary drive pulley, the belt of which is kept at a constant tension by a spring-loaded jockey pulley. (Incidentally, the countershaft itself is mounted on a spring-loaded bracket, thus accommodating any primary belt stretch.)

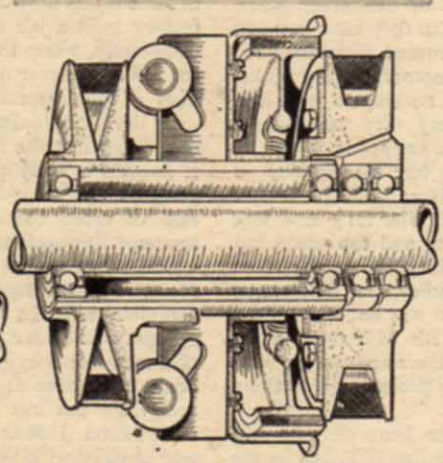
When the engine is just ticking over, the brake shoes are free of the drum which, with the secondary pulley in the fully-expanded position, remains stationary. As the throttle is opened, however, the shoes move outward under the effects of centrifugal force and contact the drum, whose bob-weights move up their grooves as engine speed increases, thereby forcing the floating flange outwards from its "free-engine" position and, afterwards, automatically raising or lowering the gear according to throttle opening and gradient. Thus, driving consists solely of operating the twistgrip and the brake pedal—the acme of simplicity.





(Above) The nearside of the all-belt-drive machine and (left) a close-up of the engine and automatic gear unit.





Internal details of the Simplex infinitely variable gear. On the left it is shown in "free-engine" and above in the highest ratio.

The two-stroke power unit, which produces 4 h.p. at 4,000 r.p.m., is unusual in several respects. The overhung crankshaft, for example, supported by no fewer than three ball bearings, is ported for induction purposes and two 14-mm. sparking plugs are fitted, fed by a special Wico twin-ignition flywheel unit equipped with a separate coil for lighting purposes. The die-cast aluminium connecting rod runs on a double-row ball big-end bearing. The light-alloy cylinder has a cast-in iron liner. The alloy piston is of the deflector type.

The overall dry weight of the machine, details of which are clearly shown in the accompanying photograph, is only 125 lb. Maximum speed is quoted as 55 m.p.h. and fuel consumption as in the neighbourhood of 100 m.p.g. The price, ex-factory, is $214.00, or approximately £77 in our money.

Ivan J. Stretten, the well-known American motorcycling journalist, to whom we are indebted for these particulars, reports that during a recent test run he was greatly impressed with the efficiency of the automatic clutch-cum-gear unit and the general handling qualities of the new model which, apparently, has a very lively performance. Indeed, his only adverse comment concerned the absence of a front brake.

In addition to the single-tracker, the Simplex Automatic is also produced in the form of a three-wheeled 4-cwt. delivery truck. Both types are used in considerable numbers by the huge Chrysler tank-engine plant, the Shell oil refinery and other big business concerns in the New Orleans area. The fact that belt-drive has given complete satisfaction on these and earlier machines for so many years suggests that many of the criticisms levelled against this form of transmission are not well founded.

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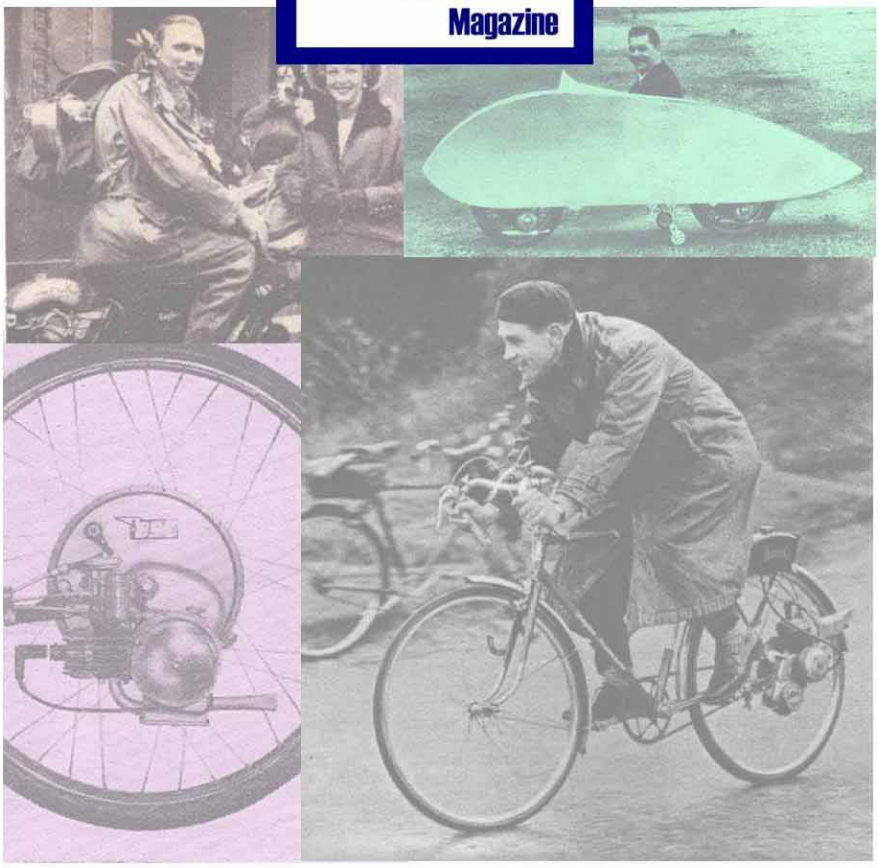

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