



**by W. J. Bailey**

**At The Brussels Cycle Show**

# BOTTOM BRACKET GEARS FOR CYCLES

I WENT over to see the Brussels Cycle Show, and found that, like the Paris Show, it is run jointly with their motor show.

Held at Heysel and housed in the old buildings of the Brussels Exhibition, it was close to the scene of the 1936 world's championships, which were run off on a portable track which stood within a stone's throw.

On the cycle side there was nothing of any outstanding interest. There was one machine, however, which did attract my attention—this by reason of the brake which was fitted to it—one of English manufacture—a Monitor Super-Cam.



TWO bottom bracket gear boxes were of particular interest and came in for a great deal of attention. One, a German production, the Adler; and the other of Swiss manufacture, the Phoebus Mutaped. While both of the gears were fitted into an enlarged type of bottom bracket shell, they were, however, different in action, the German gear being operated by a gear-lever, while the Swiss type (termed "automatic") was operated by ratchets, by the movement of the cranks in a backward direction.



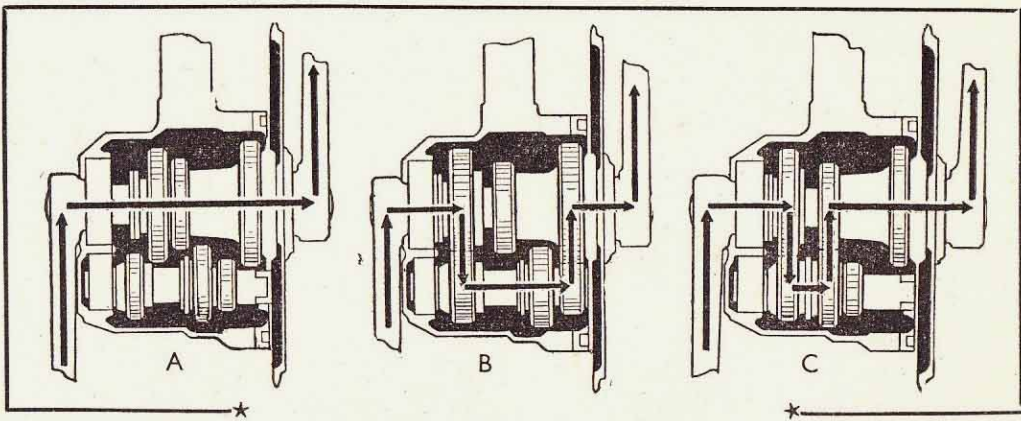
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R EVIEWING the German gear first, it can be seen that in normal gear none of the cogs are in mesh, and the drive is direct from bracket spindle to chainwheel.

It will be seen that there are two shafts: the main shaft, to which the cranks are attached, and which carries three cogs, and a lay shaft, with a like number of pinions. On referring to the three diagrams it will be seen that the left-hand cog of the main shaft is free to slide. The double cog on the right of the lay shaft can also be made to move and engage with the cog desired, by means of striking forks coupled up with a gear-lever.

A change to top gear gives an increase of 17.5 per cent. above normal, by bringing the cogs into the position as seen in the diagram.

The drive is then transmitted

**MACLEAN'S**



The Adler three-speed gear box, in section. The bracket spindle (taking the drive from the cranks) is fixed to the left-hand cog on the main shaft. The chainwheel takes its drive from the large cog on the right of the main shaft.  
 For normal, the left-hand cog drives, via an internal dog, direct to the right-hand cog. All other cogs are out of mesh, and so a solid drive is obtained (see A).  
 For bottom gear, the left-hand cog moves to the left (thus being disengaged from the chain wheel) and drives through the cogs on the lay-shaft (see B).  
 To engage top, the right-hand cog on the lay-shaft moves over and transmits the drive via the middle cog on the main shaft (see C).

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from the left through the cogs, as shown, and finally taken up by the chainwheel.  
 A change to the low gear effects a decrease from normal of 20 per cent., and is brought about

by the gears being moved into the position shown, with the drive still being effected from the left as indicated.

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THE Swiss gear dispenses with

chainwheel, transmits the drive to it.  
 The manufacturers claim that these bracket gear-boxes increase the weight of a normal machine by approximately 2 1-5 lb.

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