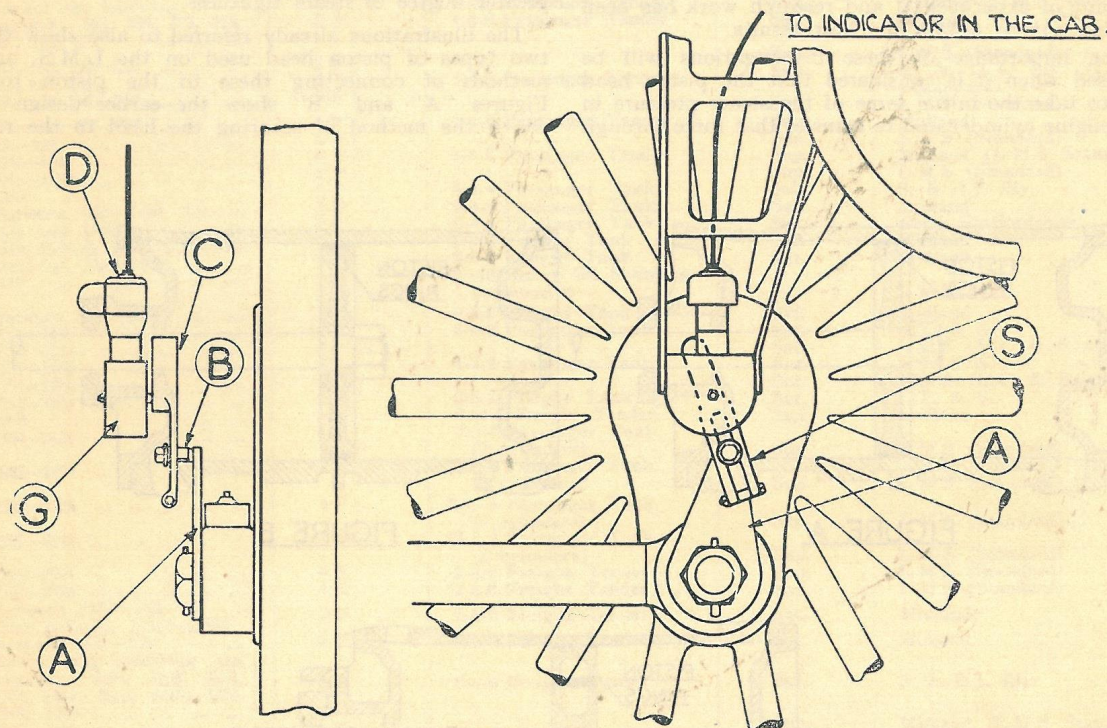


ENGINEMEN'S M.I.C. MOVEMENT

Application of Speed Indicators to Modern Locomotives



THE strict observance of speed restrictions is of the utmost importance, and in order to assist drivers speed indicators have now been fitted to a number of express passenger engines.

In addition to the permanent speed restrictions, laid down in the working appendices, the Chief Civil Engineer imposes temporary restrictions in connection with relaying or other permanent way work, which is being carried out, and an accurate indicator enables a driver to conform with these, without having to rely on his own judgment.

Speed indicators are also of great assistance to drivers in maintaining point-to-point timings, which are essential for the successful operation of accelerated services.

This month we illustrate the arrangement of an electrical type of speed recorder, which works on the principle that the voltage produced by an electrical generator is proportionate to the speed of the engine.

The gearbox (G) and the generator (D) are mounted on a bracket, and are rotated by the driving arm (A) which is attached rigidly to the crank pin nut. The main driving spindle in the gearbox has a slotted arm (S) for taking the drive from the driving arm (A) through a bronze die block (B). It will be noticed that the slotted arm has an extension (C) which is merely a counter weight to keep

the gearbox spindle in perfect rotary balance.

The arrangement is usually fitted to the left trailing coupled wheel, and it will be seen that as the wheel rotates the arm (S) will rotate through the movement of the driving arm (A) and that any inequality in the permanent way, and movement on engine springs will be accommodated by the die block (B) in the slide of the slotted arm.

The rotation of the engine driving wheels is transmitted via the driving arms through bevelled wheels in the gearbox (G), which in turn rotates a 4-pole magnetic unit in the generator. The electric current from the generator is conveyed through an insulated cable to the indicator in the cab.

The speed indicator in the cab is a moving coil voltmeter with a metal rectifier incorporated so that the generated alternating current is converted to direct current.

In case of failure of the speed indicator or the generator the apparatus should not be interfered with by the footplate staff, but the circumstances should be reported when signing off duty. The driving gear needs no attention from the footplate staff except a drop of oil on the die block and slide when preparing the engine. A grease nipple is provided in the centre of the gearbox for lubrication of the gears, and this is attended to by the fitting staff.