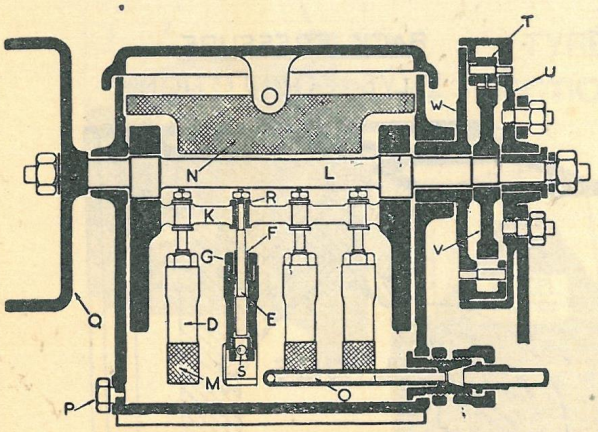
ENGINEMEN'S M.I.C. MOVEMENT

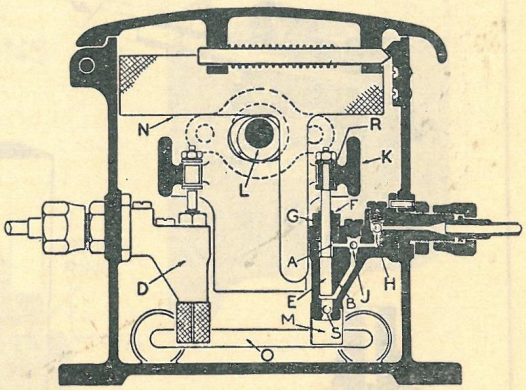
Mechanical Lubricators

THE introduction of mechanical lubrication to cylinders and axleboxes is now rapidly superseding the old method of supplying oil to these parts which was by means of hydrostatic lubricators and trimming fed oil boxes respectively.

The standard type of mechanical lubricator used on the L M S is shown in the illustration and in the main consists of a cast-iron box into which is fitted a number of independent oil pumps, all of which are operated simultaneously.

The box itself forms an oil container and is fitted with a hinged lid which can be readily opened for the purpose of replenishing the oil which is filtered through a large fine mesh sieve N.





As a comparatively thick oil is used for cylinder lubrication it is necessary to provide means for preventing the oil from congealing in cold weather and this is achieved by fitting a warming pipe O through which an independent supply of steam is passed. It is, of course, not necessary to use this arrangement during the summer period. When necessary the oil can be drained from the lubricator through a drain plug P.

The supply pumps D are double acting, i.e., oil is delivered on both the up and down movements of the pump plunger E, giving a continuous oil supply.

The movement of the plunger E is obtained in the following manner: The lubricator is driven from some convenient point on the motion through a clutch box which gives a one-directional rotation of the driving shaft L, on each end of which is a cam working in slots in the driving frame K, the latter being so arranged as to slide vertically in guides at each end of the lubricator box. It will be seen, therefore, that when the driving shaft is revolved a reciprocating motion will be given to the frame which is connected to the pump plungers E by means of thimbles R.

The action of the oil pump is as follows: On the upward movement of the plunger, oil is drawn via a small sieve M through a ball valve S, thus filling the space below the plunger. During the downward movement of the plunger the ball valve S is held on its seat and oil is forced up the passage B past the ball valve J, half of the oil filling the cavity A on the top of the plunger, the remaining oil being forced past the ball valve H into the lubricating system.

By studying this cycle of operation it will be seen that in the upward movement of the plunger, in addition to oil being drawn into the lower passages of the pump, the oil remaining in the cavity A is also forced through the ball valve H, during which operation ball valve J is held on its seat.

To prevent leakage of oil from the top side of the plunger a special packing is provided and is held in position by means of a sleeve F and gland nut G.

Reference has already been made to the clutch box which converts the reciprocating motion of the external drive into a one-directional rotary move ment, which is obtained by six spring loaded pawls T fitted to the outer case of the clutch box U and engaging in teeth on the outer edge of the driving wheel V which is keyed to the main shaft L so that when the case is moving in one direction the driving wheel V is rotated, but on the return direction is held in position by means of six retarding pawls provided in the fixed plate W.

On the opposite end of the driving shaft is fitted a handle Q which can be turned by hand to operate the pump independently of the action of the engine.

Mechanical lubricators of this design are made with varying numbers of pumps to suit different classes of engines.

A further article will describe the distribution of the oil after it has left the lubricator.