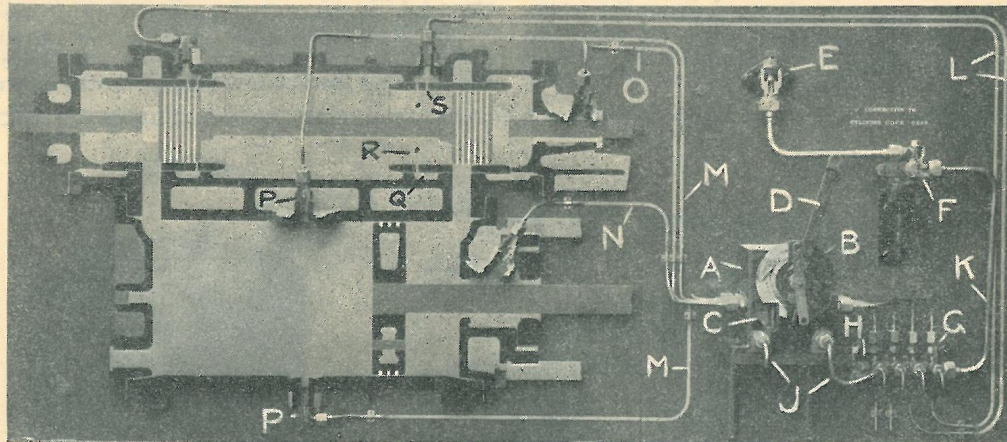


ENGINEMEN'S M.I.C. MOVEMENT

Application of Mechanical Lubrication to Cylinders and Piston Valves

THE Mutual Improvement Classes have now been fortunate enough to acquire a full-size model which clearly illustrates the application of mechanical lubrication to the piston valves and cylinders of modern locomotives. Although articles have already appeared in this column describing the various components used in connection with mechanical lubrication, it is considered desirable that a greater

flow of steam to ensure a wide distribution of oil. The atomised oil is not admitted to the steam chest directly at the point of delivery, but is first delivered into an annular groove "Q" formed in the steam chest casting, from whence it passes through a number of small holes "R" drilled radially on the steam admission side of the piston valve liner. The atomised oil thus supplied to the steam chest not



A—Mechanical lubricator; B—Clutch box; C—Pump; D—Link for lubricator driving gear; E—Steam supply valve for atomiser; F—Steam control valve for atomiser; G—Atomiser; H—Steam valve between atomiser and lubricator warming pipe; J—Lubricator warming pipe; K—Steam supply pipe to atomiser; L—Oil delivery pipes from atomiser to piston valve liners; M—Oil delivery pipes to cylinder barrel; N—Oil delivery pipe to piston rod gland packing; O—Oil delivery pipe to valve spindle gland packing; P—Back pressure valves; Q—Annular groove in steam chest casting; R—Oil delivery holes in piston-valve liner; S—Hole for cleaning oilway in lubricator connection.

understanding of the system might be obtained by the study of the layout of the model. The illustration shows a photograph of the model which very clearly sets out the lubrication system as applied to a set of cylinders.

The model incorporates an actual mechanical lubricator which has been cut to show all the important details such as those which comprise the pumps and driving mechanism.

On the right-hand side of the photograph will be seen all the important components used in connection with atomisation of the oil.

Only the piston valves are supplied with atomised lubrication and this is taken through the pipes "L" which are connected to adaptors screwed into the steam chest casting. The oil which is supplied direct from the mechanical lubricator without passing through the atomiser, passes through the pipes "M" to the centre of the cylinder barrel and is delivered through back pressure valve "P" at both the top and bottom of the barrel.

Oil is also supplied through pipes "N" and "O" for lubricating the piston rod and valve spindle gland packings respectively.

The function of the atomiser, which has been described in detail in a previous article, is to split up the oil into minute particles which are mixed with a

only lubricates the piston valves in the liners but passes into the cylinders, and so affords additional lubrication between the piston head and the cylinder walls. During shed examinations it is essential that the small holes in the piston valve liners should be inspected to see that they are not blocked up with carbon which would impede the flow of the atomised oil. An additional hole "S" is provided in the liner immediately underneath the lubricator connection for the purpose of removing any foreign matter which may have accumulated at this point.

The lubricator connections to the steam chest are not provided with spring loaded valves, as is the case with the back pressure valves to the cylinders, these valves now being incorporated in the atomiser itself.

An important point to watch when testing mechanical lubricators on engines provided with the system of atomised lubrication is the possibility of oil being pumped into the boiler. This can be prevented by uncoupling the steam supply pipe "K" to the atomiser "G," substituting a blank nut in place of the union connection and closing the steam stop valve "H" situated between the atomiser and the lubricator warming pipe. It is necessary for this valve "H" to be closed, otherwise oil will be forced through the warming pipe "J" to waste.