hose to be fitted is placed, the latter being clamped securely in place by similar blocks attached to the end of an equal arm lever suspended from the piston of the upper air cylinder, as shown in the detail view. The operation of this upper cylinder clamps the hose in place. The centre of the hose clamp blocks and the end cylinders are concentric, and in the heads of the piston rods there are receptacles for receiving the hose fittings. The inward movement of the pistons of these end cylinders forces the fittings into the stationary hose. Prior to this operation the clamping bands are slipped over the ends of the hose. The vertical cylinder beneath the table has another equal arm lever attached to the end of the piston rod, and to the outer end of the lever there are attached the lower ends of a pincer arrangement at each end of the hose. These pincers are fulcrumed at the level of the upper surface of the table, and fit over the hose clamps, the depression of the lower cylinder causing the pincers to close, tightening up on the hose clamps, the holding bolts for which can then be applied and tightened up before the release of the cylinders. This arrangement is very flexible, as varying lengths of hose may be handled in the same machine, taking up the difference in length by varying the piston travel of the horizontal cylinders, or shifting their location on the table. As the C.N.R. uses only 22 in. hose, this is unnecessary. A set of 1, 1⅜ and 1½ in. blocks for these sizes of hose is necessary with the machine. The principal feature of merit in this device lies in the operation developed by the lower cylinder, which is an old 8 in. air brake cylinder. This has a maximum travel of 3 ins., brought about by reducing the regular spring by 8 ins. This article has been compiled from one in the Railway Master Mechanic.

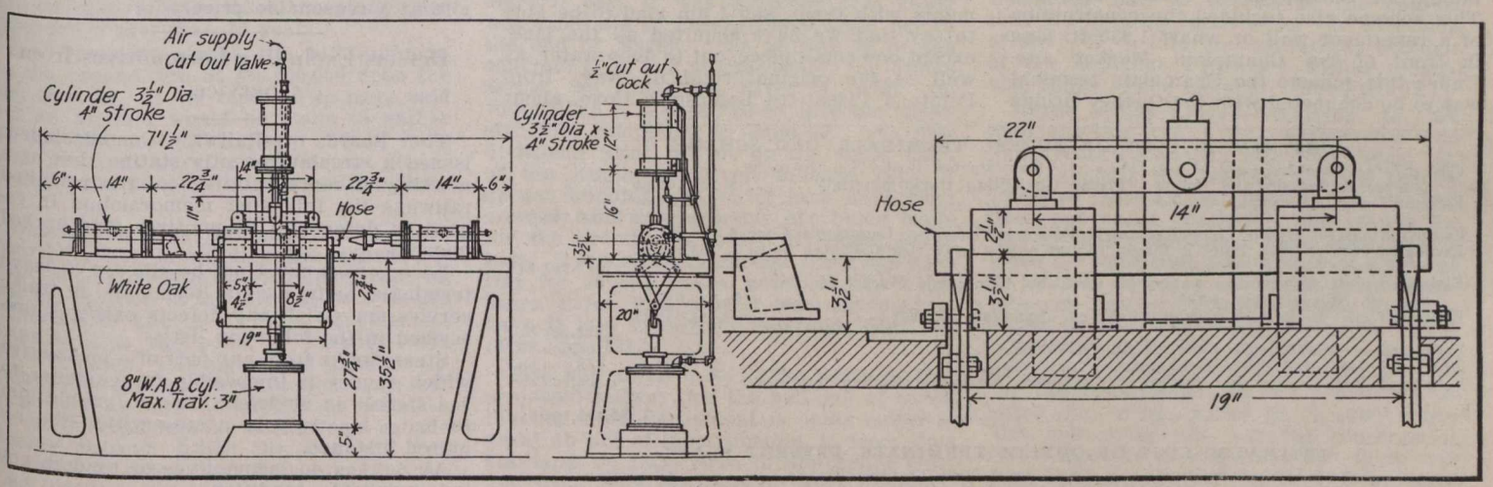


Fig. 6.—C.N.R. Hose Mounting Machine, with Detail of Clamping Heads.

Centre Sill End Reinforcing Member for C.P.R. Freight Cars.

Centre sills of freight cars have always been a subject for study for all car departments, as the expense of maintaining these members has been one of the most vital questions in freight car maintenance, more especially in recent years, when the motive power has been increased beyond the point for which the cars were designed. The starting and bumping strains in a train of freight cars all come through the two centre sills, and this has been the cause of their being frequently broken or split to such a degree as to necessitate renewal, either by introducing an entirely new sill, or else by splicing the sill. With the present high cost of these members, and the cost of labor rising, this has been an expensive undertaking, and has been one of the greatest causes for the introduction in wooden equipment of steel centre sills, and the tendency toward an all steel construction. The recent policy of the C.P.R., when centre sills have been damaged to such an extent as not to be readily repaired by splicing, has been to remove them entirely, and replace with steel centre sills, which can be slipped in place under the damaged car with but little more work than is required in renewing with wooden members.

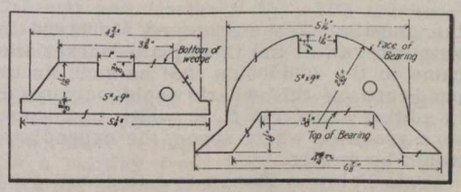
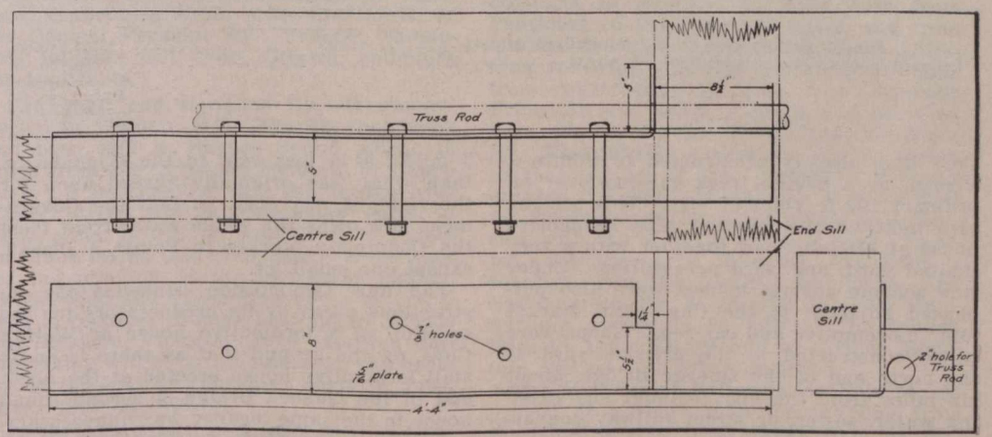


Fig. 5.—C.N.R. Journal Bearing and Wedge Gauges.

The C.P.R. has long maintained that sills that are only slightly split at the ends are still useful, and do not need to be renewed. This opinion is not held by many roads, and difficulty has been experienced at interchange points by the inspectors of other lines refusing to accept these cars, which the C.P.R. claims are quite serviceable. To overcome this trouble, the reinforcing member shown in the accompanying illustration was devised in the C.P.R. Car Department, the first application being made in Montreal in January. Those who are familiar with car repair work know that the ends of the centre sills have a tendency to develop slight cracks, which, in themselves, are generally negligible, but which sometimes develop to such a degree as to render the sill useless. Quite frequently, however, these cracks do not develop beyond the incipient stage, and it would consequently be a needless expense to replace the whole sill or splice the end. To overcome this trouble, and at the same time place the cars in such a state of repair that they will not be refused at interchange points, this reinforcing member was devised.

As the illustration shows, this member is in the form of an angle iron, formed in the bulldozer from a piece of 5-16 in. plate, 4 ft. 4 ins. by 13 ins., with the flange, 8½ ins. from one end, bent back at a right angle. After the removal of the draft gear this member is fitted to the centre sill, one angle to the lower side, and the other to the outer side of the sill, the right angle bend bearing against the end sill, the truss rod passing through a 2 in. clearance hole in this bent lug. Through the vertical flange there are five ¾ in. bolts, which pass through the sill, binding the latter together laterally. The vertical holes in the sill for the attachment of the draft gear are laid out on the horizontal angle of the member, and these holes drilled in the flanges, and this flange tied to the sill, the same as the side flange, the sill being tied securely together, both horizontally and vertically. The lower flange extends under the lower face of the end sill, giving additional support to the latter. The right angle lug along the back of the end sill takes any thrust from the latter into the centre sill without in any way straining the end of the centre sill, and distributes the thrust through a considerable length of the end.



C.P.R. End Reinforcing Member for Slightly Damaged Centre Sills.

The key block construction of the centre sill is not required in this arrangement, as the vertical bolts from the draft gear, passing through the reinforcing plate, transmit