This invention relates to rail and flange lubricating apparatus for railway tracks and lubricant distributing means for such apparatus, the apparatus being of the kind in which the lubricant distributing means is adapted to be located on a rail of the track and to receive lubricant from a lubricant reservoir through one or more associated pumps, the or each pump being provided with associated actuating means intended to be disposed in the path of passing railway wheels so that, when a wheel passes over the actuating means, the or each pump will be operated to cause lubricant from the reservoir to be forced to the lubricating means whence it is directed to the desired surface or surfaces of the rail.

In accordance with the invention there is provided in or for rail and flange lubricating apparatus of the kind referred, lubricant distributing means comprising a distributing plate assembly and a lubricant distribution duct adapted to be secured along the head of a rail of the track, the assembly including a plate which is slotted along its length so that, when applied to the rail, the slotted plate cooperates with the rail head and the adjacent plate of the assembly to define a series of lubricant discharge passages.

For a better understanding of the invention and to show how it may be carried into effect, an embodiment thereof will now be described, by way of example, with reference to the accompanying drawing, in which:

FIGURE 1 is a side view of lubricant distributing means for rail and flange lubricating apparatus,

FIGURE 2 is a cross section taken along the line II—II of FIGURE 1, and

FIGURE 3 is a cross section taken along the line III—III of FIGURE 1.

Referring to the drawing, the embodiment illustrated comprises lubricant distributing means for a rail and flange lubricator for a railway track. The distributing means indicated generally at 1 is in the form of a unit incorporating a distributing plate assembly 2 and a grease distribution duct or supply tube 3 to which the assembly is secured. The duct 3 comprises a length of metal piping which can be clamped along one side of a rail 4 of the track, the pipe being formed therealong with a number of spaced apart grease distribution holes 5 and being sealed at its opposite ends by screw-threaded closures plugs 6. The duct 3 has along its outer side, i.e., the side thereof remote from the web 7 of the associated rail, a flat machined surface along which an inner plate 8 and an associated outer plate 9 of the plate assembly, are secured. The inner plate 8 is formed along its length with spaced apart transverse slots 10, the slots 10 opening into the upper edge 11 of the plate and defining between the adjacent side face of the rail head 12 and the outer plate 9, a series of discharge passages for the grease. The plates 8, 9 are fixed to the duct 3 by bolts 13 which extend through the lower longitudinal marginal parts of the two plates and are screwed into the duct, the arrangement ensuring a grease-tight seal between the plate assembly and the machine surface of the duct.

The duct 3 is provided adjacent its opposite ends, with abutment faces 14 having inclined faces which extend downwardly and inwardly relatively to the plate assembly and towards the rail web 7, as shown in FIGURE 2. Each abutment face is engaged by clamping means indicated generally at 16 for urging the grease distribution duct 3 upwardly and inwardly into the raised angle between the head 12 and the web 7 of the rail, there being a strip 17 of flexible packing material, such as rubber or rubberised sheet, between the duct and the rail. Packings are also provided at the opposite ends of the duct to prevent leakage of lubricant from the space between the underside of the rail head and the duct.

The distribution duct 3 is provided substantially midway therealong with a control cock 18 which is fitted with a nipple 19 for the reception of a grease supply conduit 20. The control cock 18 provides for control of the amount of grease, which may be fed to the duct 3 and thereby discharged through the discharge passages defined between the inner slotted plate 8 and the outer plate 9. The conduit 20 is constituted, in the present embodiment, by a length of reinforced flexible hose which extends from the distribution duct to the outlet of a pump (not shown) of an associated lubricant reservoir, mounted on a running rail of the track and disposed in the path of passing railway wheels so that each time a wheel depresses the actuating plunger, the pump will be operated to force grease from the reservoir through the supply conduit into the distribution duct 3. The reservoir and the associated actuating mechanism may be of the kind mounted in a position remote from the lubricant distributing means, and substantially as described in copending patent application Serial No. 221,068, now abandoned.

The inner and outer plates 8, 9 of the lubricant distributing means may be formed with elongated holes or slots for the reception of the fixing bolts 13, to permit the position of the plates to be adjusted vertically. The arrangement enables the plate assembly to be adapted for fitting to rails having heads of different heights. Moreover, the inner plate 8 may be so arranged that the lands formed along the upper longitudinal edge of the plate between adjacent slots 10, are disposed above the upper longitudinal edge of the front of the outer plate 9. This arrangement enables the wheel flanges to bear against the upper portions of the plate 8 rather than against the outer plate 9, thereby to prevent the slots 10 from being closed by pressure of the wheel flanges on the outer plate 9.

Each clamping device 16 comprises a clamp body 21 having a lower foot part 22 which bears against the base flange 23 of the rail. The clamp body 21 has at its upper end, an outwardly and upwardly inclined portion 24 formed with a screw-threaded hole for the reception of a clamping bolt 25. The lower foot part 22 of the clamp, merges into a downwardly curved portion 26 formed integrally with a limb 27 extending transversely below the rail base 23 and having at its free end an adjustable saddle member 28 adapted to be engaged or hooked over the edge of the base flange 23 at the side of the rail remote from the grease distributing plate assembly 1. The saddle 28 comprises an upper plate 29 having, at opposite sides, depending legs 30 formed with holes for the reception of a split pin 31. The plate 29 is formed on its underside with two longitudinally spaced and transversely extending teeth or ribs 32 adapted to engage between corresponding transverse teeth 33 formed in the limb 27 of the clamp. The arrangement is such that upon removal of the split pin 31, the saddle may be adjusted in position along the limb 27, according to the dimensions of the base flange 23 of the rail. The plate 29 of the saddle is formed integrally with a head 34 provided at opposite sides with transverse recesses 35, 36. As shown in FIGURE 2, the head 34 is offset with respect to the centre lines of the teeth or ridges 32 so that by reversing the position of the saddle on the limb

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RALL AND FLANGE LUBRICATING APPARATUS


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7 Claims. (Cl. 104—3)

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3,147,892

27 of the clamp, there can be obtained a half-tooth pitch adjustment between the saddle and clamp.

The arrangement is such that with the saddle 28 appropriately positioned on the clamp, the latter can be initially supported upon the rail, by engagement of this saddle and the opposed foot portion of the clamp, with the rail base flange. This facilitates the initial positioning of the distribution duct and plate assembly, and the fastening thereof to the associated rail. Upon tightening of the clamping bolts 25, the foot portion 22 of each clamp tends to move down the inclined base flange 23 until this movement is resisted by engagement of the saddle 28 with the base flange at the opposite side of the rail. As shown, moreover, in FIGURE 2, the line of thrust of each clamping bolt 25 is offset laterally outwardly from the central longitudinal axis of the lubricant duct 3 so that there is produced a small couple which tends to turn the duct 3 about its axis in a direction to urge the inner plate 8 of the assembly firmly against the adjacent face of the rail head 12. At the same time, the thrust tends to push the duct 3 firmly against the packing 17 and to cooperate thereby in forming a satisfactory grease tight seal. The clamping arrangement is such as to render unnecessary the drilling of holes in the rail for the fitting of the greasing unit.

In operation, as train wheels pass over and depress the actuating plunger of the lubricating apparatus, grease is forced through the supply hose 29 from the grease reservoir into the interior of the distribution duct 3, the grease passing along the duct and issuing through the distribution holes 5 into the space 40 defined between the underside of the rail head 12, the upper longitudinally extending part of the duct 3 and the inner plate 8 of the plate assembly. The grease flows along the space 40 and passes upwardly through the slotted parts 19 of the inner plate 8 in such a manner that the grease is directed onto the rail where it can be picked up by the flanges of passing train wheels.

The outlet holes 5 in the grease duct 3 are positioned and dimensioned to ensure an even distribution and discharge of grease along the duct. The arrangement is also such that during normal operation there will be a relatively small volume of grease in the duct 3 and in the space 40 between the duct and the rail head. This ensures a constant movement of the grease and serves to reduce the tendency for the grease to harden and to block the various ducts and passages.

The duct 3 may be in the form of a casting, the abutments 14 being cast integrally with the duct.

If desired, two or more lubricant distributing units each incorporating a grease distribution duct as already described, may be connected by individual supply hoses to a single lubricant reservoir and the several lubricant distributing units operated from a single grease pump.

I claim:

1. For rail and flange lubricating apparatus for a railroad track, said apparatus including lubricant distributing means having a lubricant supply tube and a distributing plate assembly connected to said supply tube, connecting means for connecting said distributing plate assembly along the head of a rail of the track to be lubricated, said connecting means including clamps for clamping engagement with the rail base flange, and screw means for adjusting said clamps and engaging abutments on said plate assembly to urge said supply tube against the underside of the rail head to provide between said rail head and said lubricant distributing plate assembly, a lubricant space charged with lubricant from said supply tube, said screw means engaging the associated abutments at locations offset with respect to the longitudinal axis of said lubricant supply tube so as, upon tightening of said screw means, to produce a couple which urges the plate assembly and said supply tube firmly against the rail.

2. Rail and flange lubricating apparatus as claimed in claim 1, wherein each clamp comprises a body, a foot portion on said body for engagement with one side of the rail base flange, a limb for location transversely beneath the base flange, and a fastener member adjustably carried by said clamp limb for engagement with the base flange at the opposite side of the rail.

3. Rail and flange lubricating apparatus as claimed in claim 2, wherein each clamp comprises a body, a foot portion on said body for engagement with one side of the rail base flange, a limb for location transversely beneath the base flange, and a fastener member adjustably carried by said clamp limb for engagement with the base flange at the opposite side of the rail.

4. Rail and flange lubricating apparatus as claimed in claim 3, wherein said adjustable member comprises a saddle, teeth on said saddle for selective engagement with corresponding teeth on the limb of said clamp body, to position said saddle along said limb according to the width of the base flange of said rail.

5. Rail and flange lubricating apparatus for a railroad track, said apparatus comprising lubricating distributing means including a distributing plate assembly, means for supplying lubricant to said assembly, fastening means having clamps for clamping engagement with a rail base flange, screw means engaging abutments on said plate assembly to secure said plate assembly against the rail head, each clamp having a body, a foot portion on said body for engaging one side of the rail base flange, a limb for location transversely beneath the base flange, and a saddle for engagement with the base flange at the opposite side of the rail, the saddle having teeth for selective engagement with corresponding teeth on the limb of said clamp body to position the saddle along the limb according to the width of said base flange, said saddle having a head, abutment portions at opposite sides of said head, said head and abutment portions being offset with respect to the teeth of the saddle, and said saddle being engageable selectively with the base flange to enable the position of the saddle along the toothed limb of the clamp to be adjusted by reversal of the saddle.

6. Lubricant distributing apparatus for a railroad track, said apparatus comprising a distributing plate assembly, a lubricant supply tube, a clamp for clamping the distributing plate assembly and said supply tube along one side of the rail head to provide along the underside of the rail head a space for the reception of lubricant from said supply tube, said distributing plate assembly comprising an inner plate formed along its upper edge with slots, and a cooperating outer plate which encloses the slots to provide passages extending upwardly from the said lubricant space so that lubricant can be discharged through said passages over the rail head, there being screw means for adjusting along the underside of said outer plate of the lubricant supply tube, said screw means engaging in elongated holes formed in said inner and outer plates and permitting said inner plate of the assembly to be adjusted vertically relatively to said outer plate so that upper slotted edge part of said inner plates protrudes above the free upper edge of said outer plates.

7. For rail and flange lubricating apparatus for a rail-
way track, lubricant distributing means comprising a distributing plate assembly, a lubricant supply duct which carries said distributing plate assembly, connecting means including clamps for adjustably securing said distributing plate assembly and said duct along the head of a rail of the track to be lubricated and abutments on said duct for engagement by said clamps, said plate assembly including an outer plate which cooperates with said duct to provide a lubricant space extending along the underside of said rail head, said plate assembly including also an inner plate formed along its length with spaced apart transverse slots which, when said distributing means is connected to the rail head, define between the outer plate and the rail head a series of passages for the distribution over the rail head of lubricant from said space, said lubricant supply duct having therealong a series of feed apertures through which apertures lubricant is fed from said duct into said lubricant space, a control cock fitted into said duct, and a flexible pipe for connecting said control cock to a lubricant reservoir.

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