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TRACK LUBRICATOR

Filed June 1, 1931

Fig. 1.

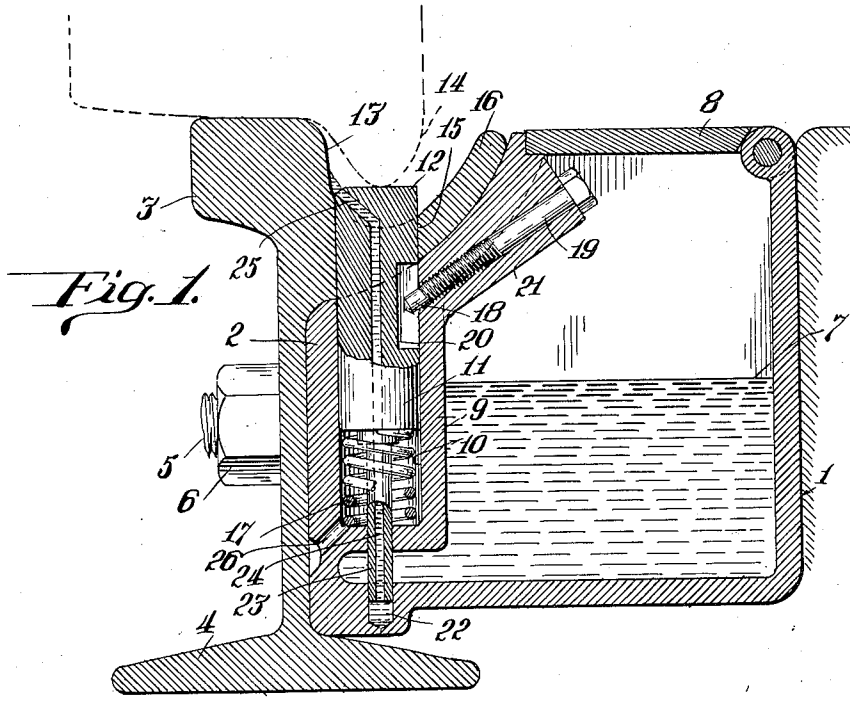
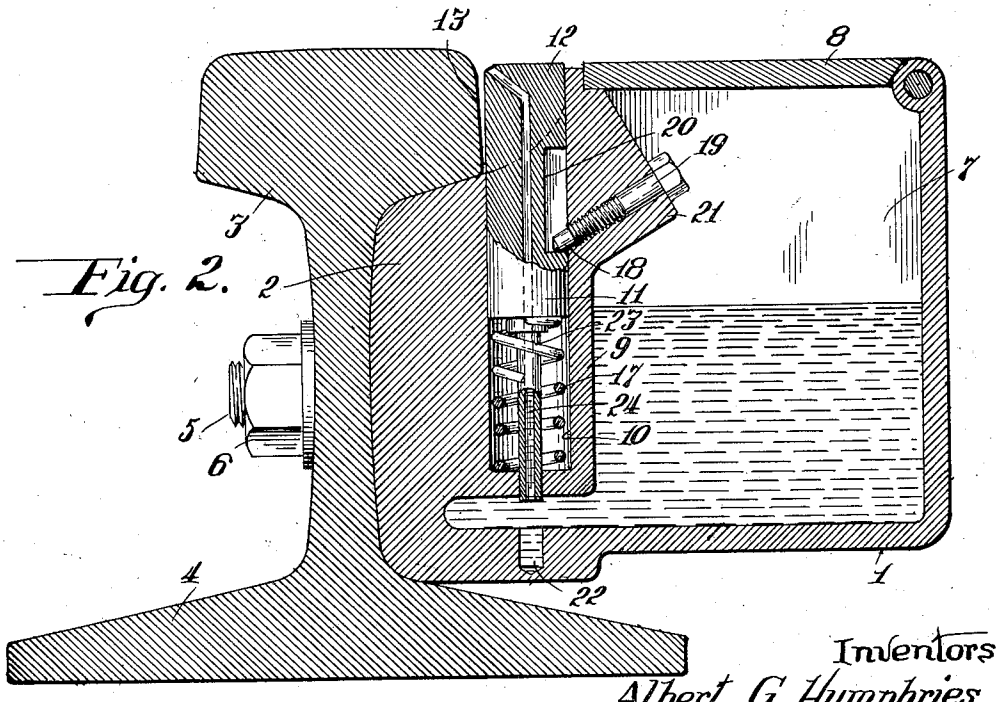


Fig. 2.



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TRACK LUBRICATOR

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9 Claims. (Cl. 184—3)

This invention relates to certain new and useful improvements in track lubricators, and more particularly to an improved device for applying lubricant to the inner face of the rail-head and to the inner faces of the car wheel flanges which contact with said rail-head.

Briefly described, the invention comprises a vertically reciprocable plunger which is positioned adjacent the inner side of the rail-head so as to be depressed by a passing car wheel flange. A duct or lubricant passage is formed directly in the plunger, and cooperating means are provided whereby as the plunger is depressed, lubricant will be forced upwardly through this passage and ejected against the adjacent side face of the rail-head.

The principal object of the invention is to provide an improved track lubricator of the type briefly referred to hereinabove and disclosed more in detail in the specifications which follow.

Another object is to provide an improved track lubricator comprising a combined operating piston or plunger and oil distributing device.

Another object is to provide an improved track lubricating means mounted entirely adjacent the inner side of the rail.

Other objects and advantages of this invention will be more apparent from the following detailed description of certain approved forms of devices embodying the principles of this invention.

In the accompanying drawing:

Fig. 1 is a transverse vertical section through one form of the apparatus.

Fig. 2 is a vertical section similar to Fig. 1, but showing the device applied to a different type of rail.

In Fig. 1 the invention is shown as applied to a girder rail of the type used in street railway systems, whereas in Fig. 2 the invention is applied to a standard railroad rail. Except for the difference in the contour or design of the casing to adapt the oiler for use with either of the two types of rails, the two forms of the invention are identical and the same description will suffice for both.

The casing 1 is provided with a side extension 2 adapted to fit between the rail-head 3 and one of the base flanges 4, and is secured against the rail in any suitable manner, as here shown by means of bolts 5 provided with nuts 6. If desired or necessary, spacing plates could be used between the casing 1 and the rail. The casing 1 houses a reservoir 7 for the supply of suitable lubricant, and a pivoted closure 8 for the top of the reservoir gives access to the oiling mechanism and permits the supply of lubricant to be replenished.

An integral extension 9 at one side of the casing projects inwardly into the reservoir space and houses a vertical guideway 10 in which is slidably positioned the plunger 11. This guideway 10 and plunger 11 may be cylindrical or of any other suitable cross section. The upper end 12 of plunger 11 is adapted to project up alongside the inner face 13 of rail-head 3 in the path of the car wheel flange 14 (shown in dotted lines in Fig. 1). When applied to the girder type of rail shown in Fig. 1, plunger 11 projects upwardly through a passage 15 in the rail flange 16. A compression spring 17 housed within guideway 10 and bearing at its lower end against the bottom of this guideway and at its upper end against the lower face of plunger 11 acts to force the plunger upwardly, this upward movement being limited by the inner end 18 of a stop-screw 19 which projects into a slot 20 formed in one side of the plunger. The stop-screw 19 is mounted, preferably in an inclined position, in an inward projection 21 of the casing. The plunger is shown in its uppermost position in Fig. 2, whereas in Fig. 1 it is shown as depressed against the resistance of spring 17 by a car wheel flange 14.

A well or charge-pot 22 is formed in the bottom of reservoir 7 coaxially in line with the guideway 10 and plunger 11. This well is closed at its lower end and in open communication at its upper end with the reservoir 7. A reduced lower extension 23 of plunger 11, of substantially the same diameter and cross section as well 22, projects downwardly through an opening in the lower end of the guideway so as to be forced into the well or charge-pot 22 when the plunger is depressed, as shown in Fig. 1. A lubricant conveying duct or passage 24 is formed centrally through plunger 11 and extension 23, this duct opening out through the lower end of the extension and having an inwardly diverted upper end portion 25 which opens through the inner edge of the plunger adjacent the rail face 13.

In operation, the plunger will normally be raised by spring 17 to the position shown in Fig. 2, in which position the lower end of extension 23 will be lifted out of well 22 so that lubricant (preferably oil) is free to flow into and fill this well from the reservoir 7. When a car wheel passes along the rail, the flange 14 will depress plunger 11 so as to force the extension 23 downwardly

into well 22. The supply of lubricant in the well 22, or a portion thereof, will be forced upwardly through duct 24 and ejected through the outlet 25. The lubricant ejecting movements of the plunger 12, even when actuated by a train moving at a moderate speed, are in the nature of sudden downward thrusts. The first downward movement of the plunger, when produced by a train moving at a moderate speed, is ordinarily sufficiently sudden to project a quantity of oil out of the discharge port 25. The wheels of a railway car truck, being relatively close together, impart quick successive impulses to the plunger 12 even though the train is moving at a relatively slow operating speed. These successive impulses build up the column of oil in the duct 24 and eject the upper portion of the column against the inner side face of the rail head. This lubricant will be wiped away by the wheel flanges 14 and distributed around the inner face of the flange and along the inner side of the rail-head. If desired, the outlet 25 could be so directed as to eject the lubricant wholly or in part against the inner face of wheel flange 14.

A suitable air passage 26 may be provided communicating with guideway 10 beneath the plunger to equalize the air pressure in this space and facilitate the reciprocation of the plunger.

It will be apparent that this lubricating unit is very simple and entirely self-contained, and is mounted entirely at one side of the rail so that no operating members or oil passages projecting around or through the rail are required.

We claim:

1. In a track rail lubricator, a plunger mounted on the rail at one side thereof in position to be depressed by a passing car wheel, there being an unobstructed duct formed in said plunger having its upper end positioned to direct lubricant toward the side of the rail-head engaged by a car wheel flange, and means for holding a supply of lubricant into which the lower end of the plunger is forced whereby lubricant from said supply means is forced upwardly through the duct and projected forcibly against the rail head during the downward movement of said plunger.

2. In a track rail lubricator, a casing secured to the rail at the side thereof, a plunger guided in said casing for substantially vertical movement, the upper end of the plunger being normally positioned in the path of a car wheel flange so as to be thrust downwardly thereby, a spring for returning the plunger to its elevated position, a stop for limiting the upward movement of the plunger, and a well for lubricant into which the lower portion of the plunger is thrust, there being an unobstructed duct formed in the plunger which opens at its lower end into the well and is positioned at its upper end to discharge lubricant forcibly against the rail-head.

3. In a track rail lubricator, a casing adapted to be positioned at the side of the rail, a plunger guided in said casing for substantially vertical movement, the upper end of the plunger being normally positioned in the path of a car wheel flange so as to be depressed thereby, a spring for returning the plunger to its elevated position, there being an opening formed in one side of the plunger, a stop screw mounted in the casing and having its inner end projecting loosely into the opening to limit the upward movement of the plunger, and a well for lubricant into which the lower portion of the plunger is depressed, there being a duct formed in the plunger which opens at its lower end into the well and is positioned at its upper end to discharge lubricant against the rail head.

4. In a track rail lubricator, a casing adapted to be mounted against one side of the rail and housing a reservoir for lubricant, there being a well formed in the casing, closed at its lower end and in open communication with the reservoir at its upper end, a plunger guided for vertical reciprocation in the casing so that its upper end will normally project into the path of the flange of a passing car wheel, the lower end of the plunger being forced into the well when the plunger is depressed by the car wheel flange, means for elevating the plunger, a stop for limiting the upward movement of the plunger, there being a duct formed in the plunger, opening at its lower end into the well when the plunger is depressed, and opening at its upper end so as to direct lubricant against the side of the rail-head.

5. In a track rail lubricator, a casing adapted to be mounted against one side of the rail and housing a reservoir for lubricant, there being a well formed in the casing, closed at its lower end and in open communication with the reservoir at its upper end, a vertical guideway formed in the casing, a plunger reciprocable in the guideway, a spring mounted in the lower portion of the guideway for normally elevating the plunger so that its upper end will be in the path of a passing car wheel flange, a stop for limiting the upward movement of the plunger, the plunger having a lower extension of reduced diameter adapted to be forced downwardly into the well when the plunger is depressed, there being a duct formed in the plunger and opening at its lower end through the lower end of the reduced extension, and opening at its upper end through the side of the plunger adjacent the rail-head.

6. In a track rail lubricator, a casing adapted to be mounted against one side of the rail and housing a reservoir for lubricant, there being a well formed in the casing, closed at its lower end and in open communication with the reservoir at its upper end, a vertical guideway formed in the casing, a plunger reciprocable in the guideway, a spring mounted in the lower portion of the guideway for normally elevating the plunger so that its upper end will be in the path of a passing car wheel flange, there being a slot formed in one side of the plunger, a stop screw mounted in the wall of the guideway and having its inner end projecting into the slot, the plunger having a lower extension of reduced diameter adapted to be forced downwardly into the well when the plunger is depressed, there being a duct formed in the plunger and opening at its lower end through the lower end of the reduced extension, and opening at its upper end through the side of the plunger adjacent the rail-head.

7. In a track rail lubricator, a casing adapted to be mounted against one side of the rail and housing a reservoir for lubricant, there being a well formed in the casing, closed at its lower end and in open communication with the reservoir at its upper end, a vertical guideway formed in the casing, a plunger reciprocable in the guideway, a spring mounted in the lower portion of the guide way for normally elevating the plunger so that its upper end will be in the path of a passing car wheel flange, a stop for limiting the upward movement of the plunger, the plunger having a lower extension of substantially the same cross-section as the well and adapted to be forced downwardly into the well when the plunger is depressed, there being a duct formed in the plunger and opening

at its lower end through the lower end of the plunger extension and opening at its upper end through the side of the plunger adjacent the rail-head.

8. In a track lubricator, a plunger mounted on the rail at one side thereof in a position to be depressed by the flanges of passing car wheels and formed with a lubricant duct terminating at its upper end near the head of the rail, and means for holding a supply of lubricant into which the lower end of the plunger is forced when depressed by the wheel flange whereby the lubricant is forced upwardly through said duct and is ejected therefrom as a jet into the space between the wheel flange and rail head against the inner surface of the rail head adjacent said wheel flange.

9. In a track lubricator, a plunger mounted on the rail at one side thereof in a position to be depressed by the flanges of passing car wheels and formed with a lubricant duct terminating at its upper end near the head of the rail, and means for holding a supply of lubricant into which the lower end of the plunger is forced when depressed by the wheel flange whereby the lubricant is forced upwardly through said duct and is ejected therefrom, as a jet, into the space between the wheel flange and rail head against one of the opposite surfaces of said last named elements.

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