Oct. 8, 1935. C. STERN 2,016,974

LUBRICANT DISTRIBUTOR

Filed Sept. 5, 1933

Fig. 1.

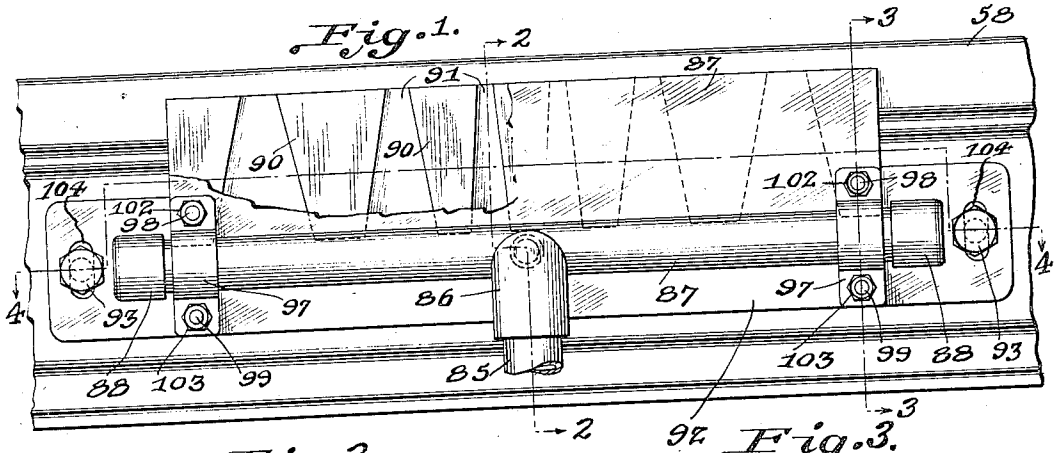


Fig. 2.

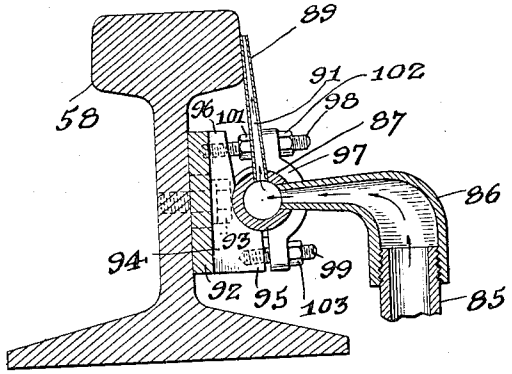


Fig. 3.

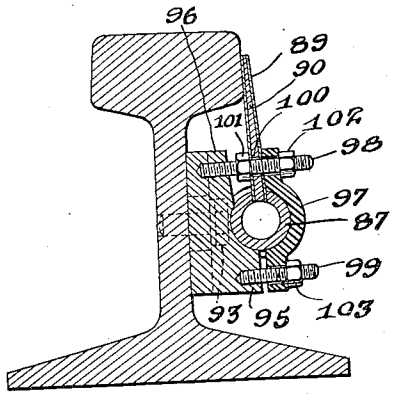


Fig. 4.

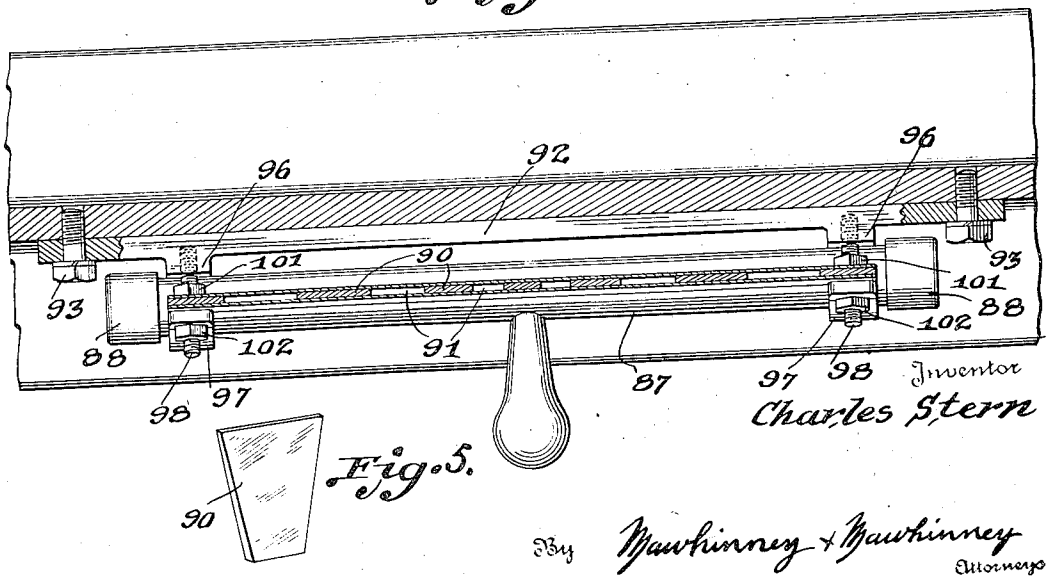


Fig. 5.

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LUBRICANT DISTRIBUTOR

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16 Claims. (Cl. 184—3)

The present invention relates to apparatus for applying a lubricant along one side of a rail head and to the flanges of the wheels or rolling stock which pass over the rail, and has for an object to provide an improved construction which will distribute lubricant at spaced apart points along the side of the rail, so that the lubricant may be picked up by rail flanges and carried by the flanges to other points along the rail.

The invention also has for an object to provide an improved distributor adapted to be mounted at the side of a rail and which is capable of pivotal movement so as to dispose the upper edge of the distributor at the desired angle to lie flat against the side of the rail, and to thus deliver the lubricant directly thereto so that the lubricant will spread upwardly toward the ball or tread surface of the rail and will not tend to drip or move down behind the distributor.

A further object of the invention is to provide a distributor and a mounting therefor wherein the lower end of the distributor may be pivotally and firmly supported at the side of the rail and at the desired angle to take care of wear on the rail and also rails of different sizes and configurations.

The invention further aims to provide a distributor with means for subjecting the lubricant in the distributor to a uniform pressure throughout the length of the distributor and to insure the distribution of the lubricant at desired spaced points along the side of the rail head throughout the length of the distributor.

With the foregoing and other objects in view, the invention will be more fully described hereinafter, and will be more particularly pointed out in the claims appended hereto.

In the drawing, wherein like symbols refer to like or corresponding parts throughout the several views,

Figure 1 is a fragmentary inner side elevation of a rail having the distributor applied thereto.

Figure 2 is a vertical section taken through the same on the line 2—2 of Figure 1.

Figure 3 is a like section taken through one end of the distributor on the line 3—3 of Figure 1.

Figure 4 is a horizontal section taken lengthwise through the distributor and the adjacent portion of the rail on the line 4—4 of Figure 1, and

Figure 5 is a detail perspective view of one of the spacing blocks or plates used in the distributor.

Referring now to the drawing, the lubricant is fed under pressure through the supply pipe 85 which extends upwardly at the inner side of the rail 58 and is coupled to a supply nozzle 86 which may be in the form of an elbow tapering at its inner end where it is joined into the base or chambered portion of the distributor.

The distributor is provided with a hollow base portion which may be in the form of a length of pipe 87 into one side of which the nozzle 86 is secured for opening into the pipe 87. The caps 88 close the opposite ends of the pipe 87 and a distributor plate 89 extends radially from one side of the pipe 87 and also extends lengthwise between the caps 88. The plate 89 may be a composite structure, as shown in Figures 3 and 4 particularly, and is provided with spaced walls between which are positioned fillers or blocks 90, and these blocks 90 are spaced apart throughout the length of the distributing plate so as to provide lubricant passages 91 between the spaced ends of the blocks. As shown in Figure 5, each block 90 is preferably tapered toward its inner end as to its lateral edges and preferably tapers in thickness toward its outer end. Thus, the passages 91 for the lubricant are narrower toward the upper end of the distributing plate than at the base end thereof where the plate opens into the pipe 87.

The lateral edges of the blocks 90 provide marginal walls for the passages 91, and such walls flare inwardly toward the pipe, as shown in Figure 1, so that lubricant under pressure in the pipe 87 is forced upwardly in the passages 91 and uniform ejection of the lubricant is obtained by increasing the flare of the passage walls from the central intermediate portion of the pipe 87 toward the opposite ends thereof.

The supply nozzle 86 opens into the pipe 87 at its central or intermediate portion so that the lubricant delivered to the pipe is forced equally in opposite directions and from the pipe is forced up into the passages 91 of the distributing plate 89. The upper end of the plate 89, being relatively thin, is adapted to lie flat against the side of the rail head and to also project up into the space formed between the rail head and the wheel flange, such as shown in Figure 3. The lubricant ejected from the upper edge of the plate is deposited directly against the side of the rail head and spreads to sufficient thickness to engage the inner side of the wheel flange so that the latter may pick up a small quantity of the grease and carry it forward for subsequent deposit on the rail head beyond the distributor.

The pipe 87 is employed as it provides a bearing

or rockable base for the distributing plate so that the latter may be swung into the desired angle to engage the rail head and adapt the distributing plate to rails of different sizes and types.

To support the distributing plate **89** in position, an attaching plate **92** is provided, the same being secured by bolts **93** or the like against the web of the rail **58**. The attaching plate is provided with a pair of brackets suitably spaced apart to engage the opposite end portions of the pipe **87**.

Each bracket **94** is in the form of an outstanding web recessed or cut away substantially semi-circularly to receive the inner side of the pipe **87** thereagainst, as shown in Figures 2 and 3, and which is provided with a lower outstanding lug **95** and an upper lug **96** which is of less length and which is adapted to lie in spaced relation from the inner side of the distributing plate **89**. A retaining strap **97** is arched over the outer side of the pipe **87** and has apertured ears for receiving therethrough threaded studs or bolts **98** and **99** projecting respectively from the lugs **96** and **95** to support the upper and lower ends of the strap **97**. The upper threaded stud **98** is relatively long and passes through a registering opening **100** provided in the distributing plate **89**, as shown in Figure 3, and a rear lock nut **101** is mounted on the stud **98** and engages the rear side of the plate **89** to hold the latter firmly at the desired angle against the side of the rail head.

The upper end of the strap **97** loosely fits over the threaded stud **98** and is clamped against the distributing plate **89** by an outer clamping nut **102**. Both the plate **89** and the strap **97** have relatively large openings therein to admit of the canting of the strap and the plate on the threaded stud when adjustments are made.

The lower end of the strap **97** has a relatively large opening therethrough for receiving the lower threaded stud **99** so that the strap **97** may rock on the stud and against the outer end of the lower lug **95**. A nut **103** is carried on the lower stud **99** and binds the lower end of the strap to the lug **95** after the desired adjustment of the distributing plate is had.

While the distributing plate or member has been shown as comprising a pipe as its base portion, and a built up structure including the blocks **90** to form the distributing plate with spaced lubricant channels, it is to be understood that this structure may be made in one or more pieces and may embody various other forms found more suitable or adaptable to varying conditions of manufacture, installation and use.

It is apparent that a lubricant fed under pressure will pass through the elbow **85** and nozzle **86** into the base chamber **87** of the distributor.

From this base chamber the lubricant will pass upwardly through the narrow tapering passages **91** and will be ejected through the upper ends of the passages at the upper edge of the distributing plate. The lock nuts **101** and **102** are relatively adjusted to clamp the plate at the desired angle on the brackets **94** so as to dispose the upper edge of the distributing plate in the desired position against the outer side of the rail head.

The attaching plate **92** is made of suitable width and length to fit against the webs of different types of rails so that the distributing member may be quickly and easily applied to the rails of different types, and the distributing plate may then be readily adjusted to meet the particular application or use.

The attaching plate **92**, held to the side of the rail web by the bolts **93**, has vertical slots **104** through which the bolts **93** pass so that the plate **92** with the distributor plate **89** and all parts mounted on the plate **92** may be raised and lowered to dispose the upper end of the distributor plate **89** at the desired height on the side of the rail head. This vertical adjustment cooperates with the pivotal adjustment of the distributor plate **89** to correctly adapt the latter to various conditions of installation and use of the lubricator.

A very important feature of the spacing or filler blocks **90** is that any desired number thereof may be used between the side walls or plates of the distributing plate **89** to prevent the closing of the lubricant passages **91** by the flanges of the wheels passing over the rail which have a tendency to squeeze or rub against the side of the distributing plate **89**. By using these fillers or blocks **90** they provide long flat passages **91** which supply the lubricant in such a manner that the lubricant will cover a relatively large wide space on the side of the rail head and also on the flanges of the wheels.

It is obvious that various changes and modifications may be made in the details of construction and design of the above specifically described embodiment of this invention without departing from the spirit thereof, such changes and modifications being restricted only by the scope of the following claims.

What is claimed is:—

1. A rail tread and wheel flange lubricator, comprising a distributing member having a lubricant delivery portion for engagement against the side of the rail head and adapted to be secured against one side of a rail, a source of lubricant supply connected to said distributing member, automatic feed means for the lubricant connected to the source of lubricant supply, a pivotal support for said distributing member adapted to be fastened to the side of a rail, and adjustable holding means engageable with said distributing member for maintaining the same in the desired swung position against the head of the rail.

2. In a rail tread and wheel flange lubricator, lubricant feeding means, a distributor connected to said means, a pivot bearing member having means for attaching the same against one side of a rail, said distributor having a journal portion adapted to seat in the bearing member and support the same and admit the swinging of the distributor into various angular positions at the side of the rail, and holding means for maintaining the distributor in position when adjusted.

3. In a rail flange lubricator, a side plate for attachment to a rail, a pair of spaced apart bearing brackets carried by the side plate and opening outward therefrom, a pipe seated across the bearing brackets for turning thereon, means for supplying lubricant under pressure to the pipe, a distributing plate secured radially to the upper side of the pipe to lie against one side of the rail head and having passages therein leading from the pipe through the upper edge of the plate, said plate adapted to be swung at its upper end toward and from the side of a rail to adjust the plate into desired angular relation thereto, and clamping means carried by the bearing brackets for binding the pipe from turning when adjusted and having adjustable holding means for engagement with the plate to steady the same in adjusted position.

4. In a rail head and wheel flange lubricator, a distributing plate, means for supporting the plate at one side of a rail, said plate having a hollow chamber in its lower portion and spaced dis-

tributing passages extending from the chamber through the upper edge portion of the plate, means for supplying lubricant to the chamber in the plate, and means for adjustably holding the plate at the desired angle against the side of the rail head.

5. In a rail and wheel flange lubricator, a distributing plate having a hollow rounded journal portion at its lower end and provided with spaced lubricant passages leading from the hollow lower end through the upper edge portion of the plate, a bearing member adapted for attachment to the side of the rail and adapted to receive the journaled portion of said plate thereon, said plate adapted to be swung on the bearing member into the desired angle against the side of the rail head, and means for clamping the plate on the bearing member and at the desired angle.

6. In a rail and wheel flange lubricator, a distributing plate having side walls and intermediate spaced blocks therebetween providing lubricant passages extending from top to bottom through the plate, a hollow bottom member secured to the plate and opening into said passages, means for supplying lubricant under pressure to the hollow member, a bearing element for attachment to the side of a rail and adapted to receive said hollow member thereon, said hollow member and plate adapted to be turned and swung into the desired angle to dispose the upper end of the plate against the rail head, and means for clamping the hollow member and the plate in adjusted position.

7. In a rail head and wheel flange lubricator, a distributing plate having lubricant passages therein opening through the upper edge of the plate and the latter being proportioned to engage in the crotch between the rail head and the wheel flange, said plate having a journal member on its lower end with a chamber therein communicating with said passages, a bearing member for attachment to the rail for supporting said journal member, said journal member with the plate adapted to be swung into the desired angle against the side of the rail, and clamping means for holding the journal member and plate in adjusted position.

8. In a rail head and wheel flange lubricator, a bracket plate adapted for attachment against the side of a rail and having outstanding bearing brackets with lower long lugs and upper short lugs, a cylindrical member seated on said bracket bearings between the lugs, means for supplying lubricant under pressure to the cylindrical member, a plate extending radially from the cylindrical member and having lubricant passages therein leading from the cylindrical member through the upper edge of the plate, straps carried by said bearing members engaging about the cylindrical member, clamping means for the lower ends of the straps, and adjusting means on the upper ends of the straps engaging the short lugs and the plate for holding the latter and the cylindrical member in the desired angular relation on the bearing brackets.

9. In a rail head and wheel flange lubricator, a bracket member for attachment against the side of a rail and having bearing portions thereon, a pipe mounted to turn on said bearing portions, a hollow distributing plate secured to the pipe and communicating therein, clamping means for securing the pipe on the bearing portions, and retaining means carried by the bearing portions engaging said plate to hold the same firmly in angularly adjusted position against the side of the rail.

10. A rail head and wheel flange lubricator comprising a support for attachment to the side of a rail, a cylindrical member mounted for rotation on the support, a hollow plate having lubricant passages therein mounted on the cylindrical member and communicating therewith and proportioned at its upper edge to fit in the crotch between the rail head and the wheel flange, said cylindrical member and plate adapted to be turned and swung in the desired angular relation against the side of a rail head, and clamping and securing means for said cylindrical member and plate to hold the same in position.

11. In a rail head and wheel flange lubricator, a supporting member for attachment against the side of a rail, a cylindrical member seated on the bracket member adapted to turn thereon, a plate secured at one edge to the cylindrical member and opening into the same and provided with spaced outwardly converging walls with spaced apart outwardly tapering blocks between the walls providing lubricating passages leading from the cylindrical member to the outer edge of the plate, said blocks having inwardly converging edge portions providing inwardly flaring walls for said passages, and the inclination of said flaring walls increasing consecutively from the intermediate portion of the cylindrical member toward the ends thereof, and means for securing said cylindrical member and plate in desired angular relation against the side of the rail.

12. In a rail head and wheel flange lubricator, a supporting member adapted for attachment to the side of a rail and having bearing portions projecting outwardly and provided with lower long lugs and upper short lugs, a cylindrical member seated on said bearing portions between the lugs, straps extending over the cylindrical member and registering at opposite ends with said upper and lower lugs, clamping means carried by the lower lugs for engaging the lower ends of the straps to bind the same against the cylindrical member and urge the latter to the bearing brackets, threaded studs extending outwardly from the upper short lugs and engaging through the upper ends of the straps, a distributing plate rising from the cylindrical member and having spaced lubricant passages therein, and opposed lock nuts carried upon said studs for engagement against the plate and the straps to lock the plate in desired angular relation against the side of the rail.

13. In a rail head and wheel flange lubricator, a distributing plate having openings at its upper end for delivering lubricant and proportioned at its upper end for engagement in the crotch between the rail head and the wheel flange, means for feeding lubricant under pressure to said plate, and adjustable supporting means for holding the distributing plate at the side of a rail head and adapted for pivotal and vertical adjustment to dispose the plate at the desired height and angle against the side of the rail head.

14. In a rail head and wheel flange lubricator, a distributing plate having a reduced upper end to fit in the crotch between the rail head and the wheel flange, means for feeding a lubricant under pressure to the plate, a supporting bracket pivotally engaging the lower portion of the plate to support the same at the desired angle against the side of a rail head, and vertically adjustable connecting means for the supporting brack-

et for attaching the same to the side of a rail to hold the distributing plate at the desired height against the side of the rail head.

15. In a rail head and wheel flange lubricator, a bracket plate adapted for engagement against one side of a rail web and having outstanding bearing elements and provided with vertical slots, securing bolts engaging through said slots and adapted for mounting on the rail, said vertical slots admitting of the vertical adjustment of the bracket plate against the rail web, a distributing plate having a lower journal portion seated in said bearing elements of the bracket plate and adapted to turn thereon for supporting the bracket plate at the desired angle against the rail head, said vertical adjustment of the bracket plate supporting the distributing plate at the desired height against the rail head, and means for feeding a lubricant to said distributing plate.

16. In a rail head and wheel flange lubricator, a distributing plate comprising spaced side walls, a plurality of spaced apart blocks disposed between said side walls and providing therebetween relatively long narrow lubricant passages presenting relatively long narrow outlet openings at the upper edge of the plate for distributing lubricant over a wide space along the side of a rail head, and means for supporting the distributing plate at the side of a rail.

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