P. CONNIFF.

WHEEL FLANGE LUBRICATOR.

APPLICATION FILED APR. 19, 1910.

990,034.

Patented Apr. 18, 1911.

2 SHEETS—SHEET 1.

Fig 1

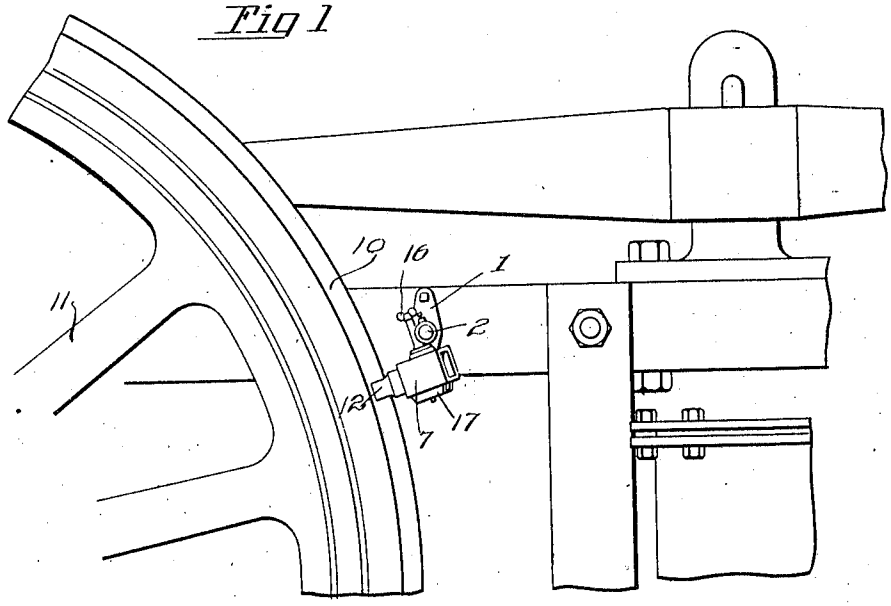


Fig. 2.

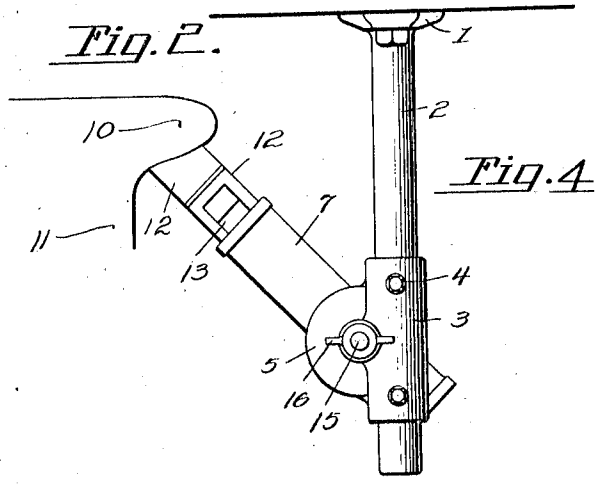
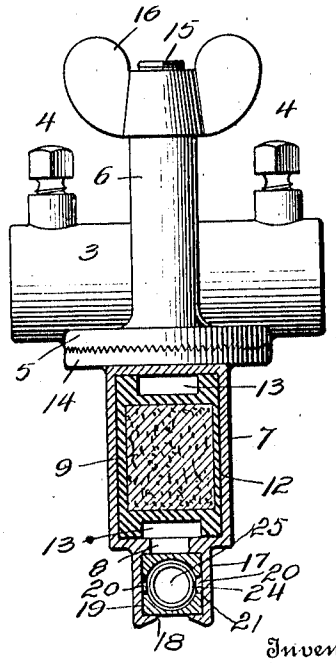


Fig. 4.



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2 SHEETS—SHEET 2.

Fig. 3.

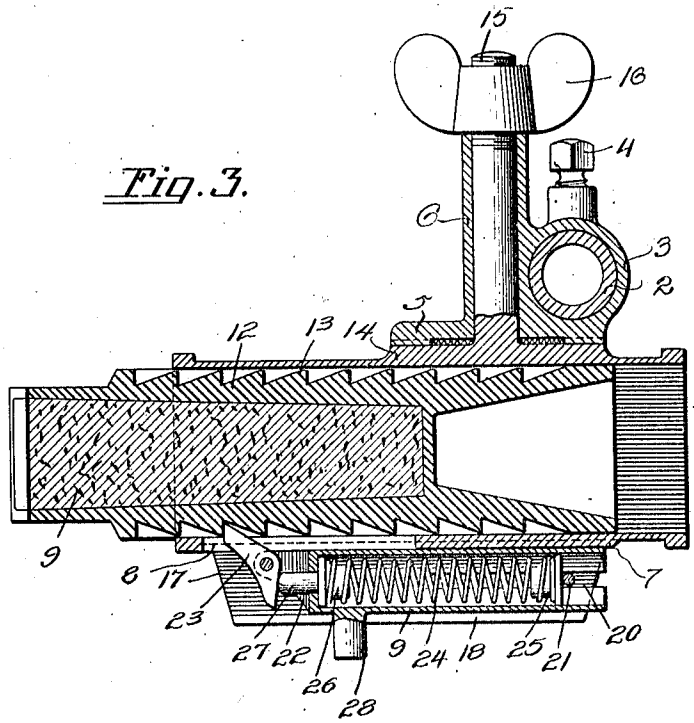


Fig. 5.

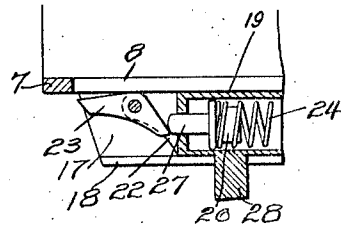
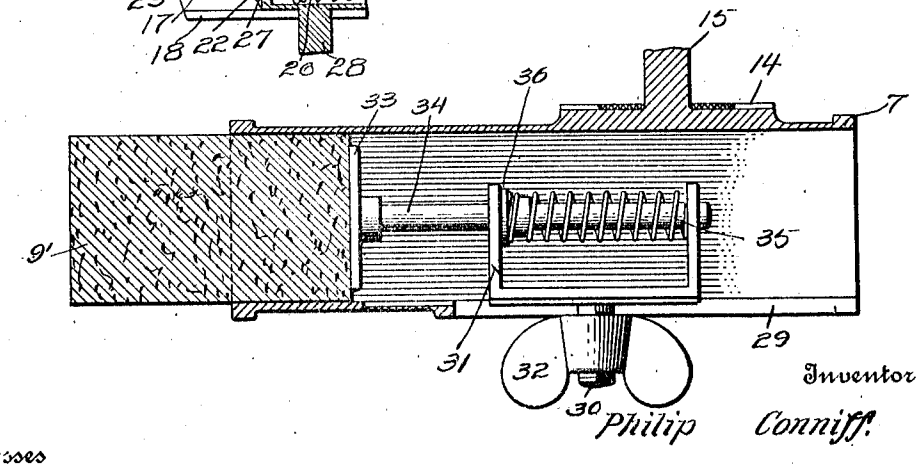


Fig. 6.



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UNITED STATES PATENT OFFICE.

PHILIP CONNIFF, OF WASHINGTON, DISTRICT OF COLUMBIA, ASSIGNOR OF ONE-HALF TO CHARLES M. HARRIS, OF WASHINGTON, DISTRICT OF COLUMBIA.

WHEEL-FLANGE LUBRICATOR.

990,034. Specification of Letters Patent. Patented Apr. 18, 1911.

Application filed April 19, 1910. Serial No. 556,356.

To all whom it may concern:

Be it known that I, PHILIP CONNIFF, a citizen of the United States, residing at Washington, in the District of Columbia, have invented new and useful Improvements in Wheel-Flange Lubricators, of which the following is a specification.

This invention relates to means for lubricating the flanges of locomotive driving wheels, tender wheels and car wheels of all kinds provided with flanges.

The main object of the invention is to provide a device whereby a bar of solid lubricant may be held in contact with the face and edge of a wheel flange to effectually lubricate the same and reduce the wear upon the flange and heads of the rails in turning curves, etc., and also to reduce the objectionable noises resulting from the grinding contact of the surfaces.

A further object of the invention is to provide a device of this character which will avoid lubrication of the tread surfaces of the wheels and consequent slippage of the wheels on the rails, and which will hold the bar at the proper angle relative to the wheel for such purpose.

A still further object of the invention is to provide simple and effective spring-actuated means for feeding the bar of lubricant forward, as it is consumed, and maintaining it in contact with the flange, which means is adapted to permit the bar to yield under the lateral thrust of the flange and is adjustable to vary its feeding pressure as occasion requires.

A still further object of the invention is to provide a novel construction of lubricant bar and sheath for use in conjunction with the holder and feeder, which bar is designed to be protected from disintegration and too rapid consumption by the shield, which wears away therewith and also acts as a lubricator.

The invention consists of the features of construction, combination and arrangement of parts, hereinafter fully described and claimed, reference being had to the accompanying drawings, in which:—

Figure 1 is a perspective view, showing the device arranged for lubricating the flange of one of the driving wheels of a locomotive. Fig. 2 is a top plan view of the same. Fig. 3 is a vertical transverse section on the line 3—3 of Fig. 4, omitting the bracket. Fig. 4 is a vertical longitudinal section. Fig. 5 is a fragmentary longitudinal section, showing the dog in released position to permit removal of the follower from the guideway of the casing. Fig. 6 is a vertical longitudinal section of a modified form of the invention.

Referring to the drawings, 1 designates a bracket plate adapted for attachment to a suitable portion of the frame structure or truck of a car and having an arm 2 extending outwardly at right angles therefrom. A sleeve or coupling member 3 is slidably mounted on said arm and adapted to be fixed in adjusted position by set-screws 4, said member being provided with a toothed head or disk 5 and an upstanding tubular portion 6, the bore of which communicates with an opening formed in the head at one side of the sleeve. Adjustably connected with the said coupling member 3 is a lubricant support in the form of a preferably oblong rectangular box or casing 7 open at each end and provided in its bottom with a longitudinal guide slot 8. This box or casing is adapted to receive the bar of lubricant 9 which projects from the forward end thereof to engage the face and edge of the flange 10 of the wheel 11. The bar 9 is inclosed by a sheathing 12 of lead or other soft, malleable material capable of preventing disintegration of the bar from the pressure of the wheel and at the same time soft enough to wear away with the bar to prevent injury to the flange of the wheel. The use of lead is preferred, as it also has a smoothing or lubricating effect. The sheath is provided with ratchet teeth 13, preferably at both the top and bottom thereof. The casing is provided at the top with a coupling head or member 14 conforming in shape to the head 5 of the member 3 and having its upper surface toothed to interlock with the teeth on the under side of said head 5, by which construction the casing may be adjusted laterally or horizontally to lie at any desired angle to the bracket arm, to properly dispose the lubricant for use. A stem 15 projects upwardly from the head 14 through the tubular portion 6 of the member 3 and is threaded to receive a clamping nut 16, whereby the coupling heads may be locked together to hold the casing in any desired position of adjustment.

Formed upon the under side of the casing is a longitudinal guideway 17 communicating with the casing through the slot 8, said

guide-way being open at each end and having in its bottom a longitudinal slot 18. A follower 19 is slidably mounted in the guideway and comprises a hollow or tubular body formed in its sides with longitudinal slots 20 receiving a cross pin 21 disposed at the rear of the guideway and secured to the sides of said guideway. The forward end of the follower is provided with spaced ears 22 between which is pivotally mounted a bell crank ratchet dog or pawl 23, one of the arms of which forms a tooth projecting upwardly through the slot 8 into the casing to engage the ratchet teeth upon the bottom of the sheath 12. Inclosed within the follower is a coil spring 24 bearing at its rear end against a head 25 bearing against the pin 21, the opposite or forward end of the spring being engaged with a head 26 carrying a plunger 27 movable in an opening in the forward end of the follower and engaging the other arm of the dog, thus, through the pressure of the spring, holding the dog in engagement with one of the ratchet teeth. The pin 21 serves as a stop and fixed abutment to prevent displacement of the head 25 at the rear of the casing, said pin permitting the follower to have rearward movement to the extent of the length of the slots 20. The plunger is provided with a finger-piece 28 extending downwardly through and movable in the slot 18, whereby the follower may be moved rearwardly to draw the dog backward to permit it to be engaged with any of the teeth in rear of the tooth previously engaged thereby for the purpose of feeding the lubricant forward again, after the bar has been fed up to the limit by the spring when engaged with any particular rack tooth.

It will be observed that the construction described permits both the dog and follower to move backwardly under pressure upon the bar from the flange of the wheel when the latter shifts laterally in order to prevent possible injury to the bar from the thrust pressure. When the dog moves forward to its extreme limit in the slot 8 it engages the forward end wall of said slot and thus prevents possible further forward displacement of the follower. By, however, pulling the follower backward to withdraw the upper arm on the dog from engagement with said forward end wall, pressure may be applied to the lower arm of the dog to retract the plunger and swing the upper arm of the dog downward through the slot 8 into the guideway, as illustrated in Fig. 5. When the parts are so disposed, the follower and dog may be withdrawn through the open forward end of the guideway for convenience in repairing and renewing the parts thereof when occasion requires.

It will be apparent that by the use of a solid bar of lubricant inclosed in a soft sheathing of the character described economy in the use of the lubricant, by preventing its too rapid wearing away and disintegration, is insured. By the use of ratchet teeth on both the upper and lower surfaces of the sheath, either side thereof may be disposed for use in connection with the dog. In applying a bar, it is simply slipped longitudinally into the casing from the rear and forced forward while the follower is held retracted until its front end engages the flange of the wheel, at which time the dog will engage one of the ratchet teeth so that upon the release of the follower the dog will connect the bar with the follower for a forward feed motion.

In the modified form of my invention shown in Fig. 6 the casing is provided in its bottom with a longitudinal slot 29 extending through its rear end to receive a depending stem 30 upon a U-shaped bracket 31 adjustable longitudinally of the casing, said stem having a nut 32 to clamp the bracket in adjusted position. Arranged within the casing is a follower 33 for feeding the bar of lubricant 9′ forwardly, said follower being provided with a stem 34 slidable in openings formed in the arms of the bracket. A coiled spring 35 surrounds the guided portion of the stem between said arms and bears against the rear arm, its forward end being secured to a stop collar 36 on the stem, whereby the follower is pressed forward by the expansion of the spring. When the bar has been fed forward to the limit of movement of the spring after the initial adjustment of the bracket, the bracket may be moved forward to again place the spring under tension for a further feed movement. This form of the invention may be employed where a simple construction of feed mechanism is desired. The bar 9′ used in connection therewith may be either sheathed or unsheathed, according to requirements.

Having thus described the invention, I claim:—

1. In a lubricator for the flanges of car wheels, a holder for a solid body of lubricant, means for supporting the holder at an oblique angle to the tread face of the wheel to bring the body of lubricant into contact with the face of the flange of the wheel without engaging said tread face, means for holding the body of lubricant yieldingly pressed against the flange, and means for adjusting the holder to vary its angle of inclination.

2. A lubricator for the flanges of car wheels comprising a casing for slidably holding a solid body of lubricant, spring-actuated feeding means carried by the casing, a supporting bracket, and a coupling connection between the casing and bracket adapted to permit adjustment of said casing at an angle to the bracket.

3. A lubricator for the flanges of car wheels comprising a casing for slidably holding a solid body of lubricant, spring-actuated feeding means carried by the casing, a supporting bracket, a coupling member slidably mounted on the bracket, locking heads upon the casing and bracket, a pivotal connection between the heads, and means associated with said pivotal connection for drawing the heads into locking engagement.

4. A lubricator for the flanges of car wheels comprising a casing, a supporting bracket, coupling means connecting the casing and bracket adapted to permit adjustment of said casing at different angles laterally to the bracket, a toothed slide movable in the casing, a follower provided with a dog engaging said toothed slide, and a spring acting upon said follower.

5. A lubricator for the flanges of car wheels, comprising a bracket, a holder for a solid bar of lubricant, a coupling connection between the bracket and holder adjustable laterally of the bracket to support the holder at an angle to the plane of the flange of the wheel, and spring-actuated feeding means carried by the holder.

6. A lubricator of the character described comprising a casing, a lubricant carrier slidably mounted in the casing and provided with ratchet teeth, a sliding follower, a dog carried by the follower to engage said ratchet teeth, a spring for operating the follower, and a plunger yieldingly held by the spring in engagement with the dog to maintain the latter in operative position.

7. A lubricator of the character described comprising a casing, a lubricant carrier slidably mounted in the casing and provided with ratchet teeth, a sliding follower, means for manually retracting the same, a dog carried by the follower to engage said ratchet teeth, a spring for operating the follower, and a plunger yieldingly held by the spring in engagement with the dog to maintain the latter in operative position.

8. In a lubricator for the flanges of car wheels, a casing, a lubricant bar mounted in the casing and comprising a body of lubricating material and a rack-toothed malleable metallic sheath therefor, and means including a spring-pressed dog acting on said sheath to feed the bar forward and hold it in yielding contact with the flange.

9. In a lubricator for the flanges of car wheels, a supporting element, a holder for a solid bar of lubricant, a connection between said parts to permit lateral adjustment of the holder at different angles to the supporting element, and feeding means carried by the holder.

10. In a lubricator for the flanges of car wheels, a holder, a sliding bar of lubricant carried thereby, said bar having rack teeth, a follower, a plunger carried by the follower, a pawl yieldingly held by the plunger in engagement with said rack teeth, means for feeding said follower and urging said plunger forward and permitting retraction of the pawl and plunger.

11. In a lubricator for the flanges of car wheels, a holder, a bar of lubricant slidably mounted therein and provided with a longitudinal series of rack teeth, a pawl for engaging said rack teeth to feed the bar forward, and a spring-actuated sliding supporting member carrying said pawl and adapted to move the same forward and permit of a yielding retraction thereof.

12. In a lubricator for the flanges of car wheels, a casing, a bar of lubricant slidably mounted therein and provided with rack teeth, a follower slidably mounted in the casing, a pivotally mounted pawl carried by the follower to engage said rack teeth, and a spring operative to move the follower forward and hold the dog in engaging position and to permit yielding retraction of said dog.

13. In a lubricator for the flanges of car wheels, a support, a casing laterally adjustable thereon to different angular positions, means for securing said casing in adjusted position, a bar of lubricant slidably mounted in the casing and provided with rack teeth, a follower slidably mounted in the casing, a pivotally mounted pawl carried by the follower to engage said rack teeth, and a spring operative to move the follower forward and hold the dog in engaging position and to permit yielding retraction of said dog.

14. In a lubricator for the flanges of car wheels, a casing, a bar of lubricant slidably mounted therein and provided with rack teeth, a follower slidably mounted in the casing, a pivotally mounted pawl carried by the follower to engage said rack teeth, a spring operative to move the follower forward and hold the dog in engaging position and to permit yielding retraction of said dog, and means for manually retracting the follower.

15. In a lubricator for the flanges of car wheels, a holder, a rack-toothed bar of lubricant carried by the holder, a dog to engage the rack-toothed bar, a movable support for the dog, and spring means for operating said support to impart feed motion thereto.

In testimony whereof I affix my signature in presence of two witnesses.

PHILIP CONNIFF.

Witnesses:
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BENNETT S. JONES.