Oct. 27, 1953 D. A. KELLY 2,656,898

CAR WHEEL FLANGE LUBRICATOR

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Fig. 1.

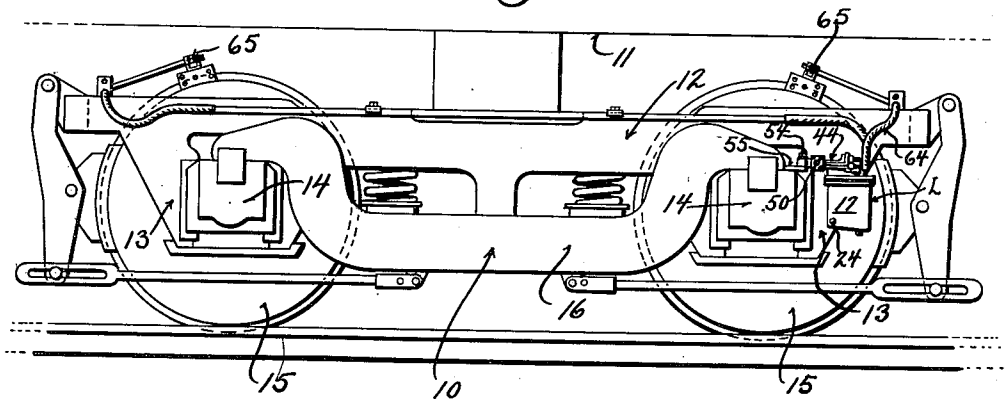
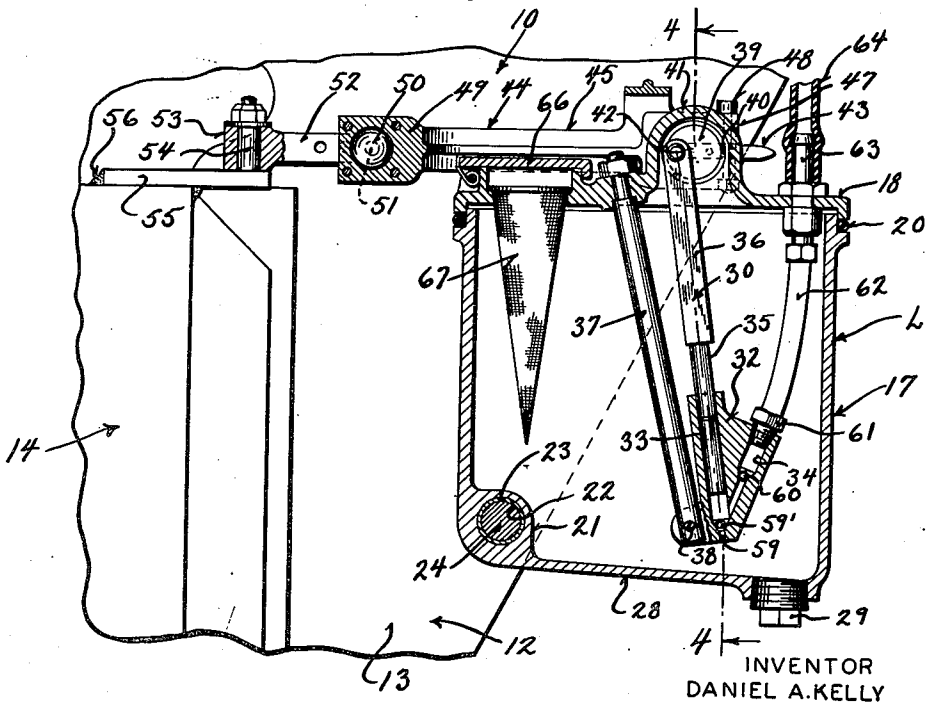


Fig. 2.



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Fig. 3.

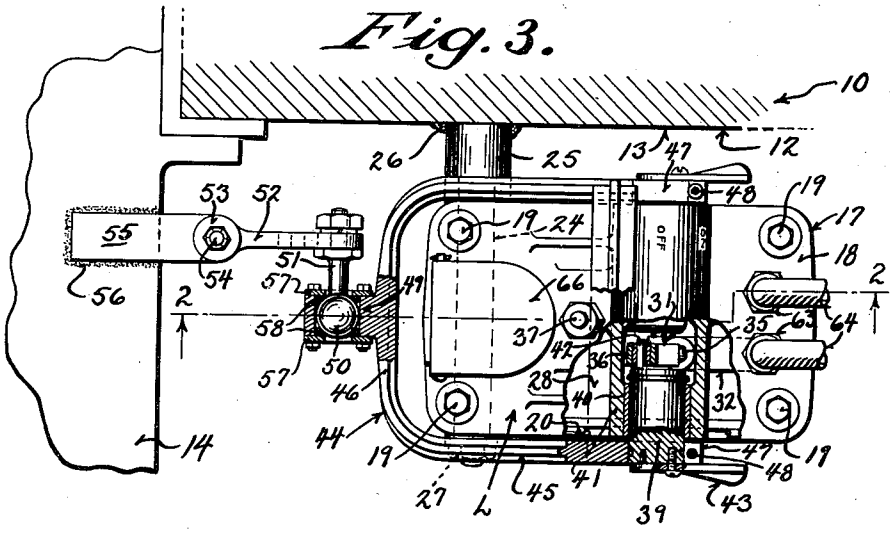


Fig. 4.

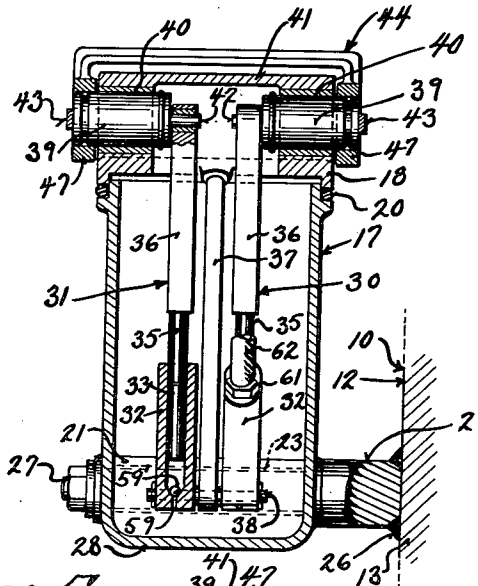
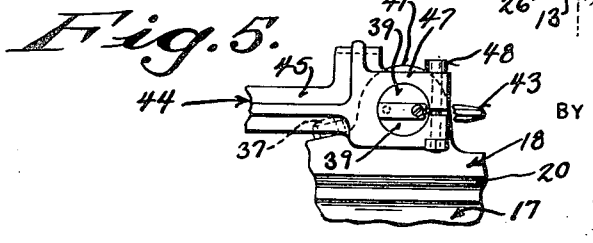


Fig. 5.



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Patented Oct. 27, 1953

2,656,898

UNITED STATES PATENT OFFICE

2,656,898

CAR WHEEL FLANGE LUBRICATOR

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Application April 5, 1951, Serial No. 219,369

3 Claims. (Cl. 184—3)

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This invention appertains to a wheel flange lubricator for railroad rolling stock of the type shown in the Ross et al. application for patent, Serial Number 39,414, filed July 19, 1948, now matured into Patent No. 2,550,865 on May 1, 1951.

One of the primary objects of the present invention is the provision of a novel driving connection between the pumps carried by the reservoir body and the driving arm welded to the journal box, so that the driving connection can be accurately set and adjusted relative to the position of the reservoir body on the truck, and the position of the driving arm on the journal box, to effectively take care of variations in journal box and truck frame conditions, whereby to bring about the desired smooth operation of the pumps by the sprung and unsprung parts of the truck during the travel of a locomotive or other piece of railroad rolling stock.

Another salient object of the invention is to provide novel means for independently adjusting the working stroke of each pump piston, so that each pump in the reservoir body can be set to deliver the exact desired quantity of oil needed for the particular wheel being served by the pump.

A further important object of the invention is the provision of means for simplifying the arrangement of the pumps in the reservoir and the mounting thereof in the reservoir, so that the pumps can be easily repaired or cleaned when necessary.

With these and other objects in view, the invention consists in the novel construction, arrangement and formation of parts, as will be hereinafter more specifically described and claimed, and illustrated in the accompanying drawings, in which drawings,

Figure 1 is a side elevational view of a railroad locomotive or car, illustrating one truck thereof and showing the improved flange lubricator operatively connected therewith.

Figure 2 is an enlarged detail vertical sectional view through the oil reservoir and one pump, the section being taken substantially on the line 2—2 of Figure 3, looking in the direction of the arrows.

Figure 3 is a fragmentary top plan view illustrating the mounting of the reservoir and the driving arm on the truck, parts of the view being shown in section.

Figure 4 is a transverse sectional view through the reservoir taken on the line 4—4 of Figure 2, looking in the direction of the arrows.

Figure 5 is a fragmentary detail side elevational view of the upper end of the reservoir illustrating the adjusting arm for one of the pumps.

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Referring to the drawings in detail, wherein similar reference characters designate corresponding parts throughout the several views, the letter L indicates generally, the improved lubricator for use with the truck 10 of a piece of railroad rolling stock, such a as locomotive 11.

The truck 10 is of the type found in general railroad use and hence will not be described in detail, but the same includes the sprung frame 12 carrying pedestals 13, in which are slidably mounted for vertical movement journal boxes 14 carrying the axles for the car wheels 15. The journal boxes 14 are carried by an unsprung part 16 of the truck.

The lubricator or oiler for the flanges of the car wheels 15, is automatically operated by the movement between the sprung and unsprung parts of the truck 10, during movement of the locomotive or car and the lubricator or oiler L is so constructed that the oil is forced up to the flange of the wheel instead of down by gravity. Hence, oil is only supplied to the flanges of the car wheels while the car is in motion.

The improved lubricator or oiler L, includes a reservoir body 17, the upper end of which is closed by a removable cover 18, rigidly held in place by machine bolts 19. A gasket 20 can be interposed between the body 17 and the cover 18, to prevent loss of oil in the reservoir, and to prevent the entrance of dirt and water into the lubricator from the outside. The reservoir body 17 is provided at one lower corner with a transversely extending boss 21 formed with an opening 22 for a bearing bushing 23. The bushing receives a mounting bolt 24. One end of the bolt is enlarged in diameter, as at 25, and this end is welded, as at 26, to the sprung part 12 of the truck 10, adjacent to one of the journal boxes 14. The outer end of the bolt has threaded therein a suitable lock nut 27, so as to retain the reservoir body on the bolt against displacement. Obviously, washers of the desired type can be placed between the reservoir body 17, and the sleeve 25, and the nut 27 and the reservoir body. The bottom wall 28 of the reservoir body can incline downwardly toward one end to provide an oil sump, and a removable drain plug 29 can be provided for the sump. Disposed within the reservoir body 17 and carried by the cover 18 are a pair of like pumps 30 and 31. One pump is utilized for supplying oil to lubricate one car wheel and the other pump is utilized to supply oil to another wheel. Under certain conditions, more oil may be required by one wheel than the other, and consequently, novel

means is provided for regulating the active stroke of each pump, as will be later set forth. As the pumps are of the same construction, only one will be described in detail. Each pump includes a cylinder block 32 having formed therein the cylinder 33 and an angularly extending bore 34. The bore 34 communicates with the lower end of the cylinder 33. Reciprocally mounted witnin the cylinder 33 is a pump plunger or piston 35, formed on a plunger rod 36. The pump plunger or piston 35 can be provided with a sealing ring, if such should be desired. A supporting rod 37 is secured to the cover 18, and depends therefrom, and is disposed between the cylinder blocks 32 of the pumps 30 and 31. The supporting rod is rigidly connected to the cylinder blocks 32 by a suitable bolt 38. Consequently, when the cover 18 is removed, the pumps are carried from the reservoir body therewith.

To bring about the operation of the pumps 30 and 31, a rotatable drive stub shaft 39 is provided for each pump and these stub shafts are mounted in suitable bearing sleeves 40 mounted in the ends of a bearing barrel 41 formed transversely on the cover 18. Each of the stub shafts 39 carry eccentrically disposed crank pins 42. One crank pin 42, is connected to one piston for the pump 30 and the other crank pin 42, is connected to the piston for the pump 31. The stub shafts 39 can be independently turned in their bearing sleeves and in the bearing barrel 41 by indicator finger pieces 43, and the barrel 41 itself can be marked to indicate "On" and "Off," or "Fast" and "Slow" feed. Obviously, by turning the stub shafts 39 independently, the positions of their crank pins 42 can be varied relative to the pump blocks and consequently, the active stroke of the pump pistons can be independently adjusted.

In order to bring about oscillation of the stub shafts 39, I provide an operating lever yoke 44. This yoke 44 includes spaced parallel arms 45, which straddle the reservoir and a connecting bridge piece 46 disposed at one end of the reservoir. The arms 45 carry split clamping rings 47 which receive the outer ends of the stub shafts 39. Bolts 48 are provided for tightening the split clamping rings 47 into gripping contact with the stub shafts 39. When the stub shafts are independently turned for adjustment the bolts 48 are loosened.

The lever yoke has formed thereon a socket 49 for detachably receiving a swivel ball 50 formed on the end of a stud bolt 51. The stud bolt in turn is firmly clamped to the lever arm 52. The lever arm 52 can be provided with a series of openings for receiving the stud bolt 51 and the bolt can be placed in any selected opening. The end of the arm 52 from the stud bolt 51 is provided with a vertical eye 53 which receives a bearing pin 54 carried by the attaching arm or plate 55. The attaching arm or plate 55, is welded, as at 56, or otherwise rigidly secured to the journal box 14 which is adjacent to the reservoir body 17. To retain the swivel ball 50 in position, clamping plates 57 are rigidly secured to the opposite sides of the socket 50 and resilient rings 58 can be interposed between the clamping plates 57 and the ball 50. The use of the ball 50 forms an important feature of the invention.

In applying the lubricator to the truck 10 of a car, the attaching sleeve 25 is welded in place on the sprung part 12 of the car truck 10, adjacent to a desired journal box, after which the arm or plate 55 is welded to the journal box. The active length of the lever arm 52 is had by placing the stud bolt 51 in the selected opening in the lever arm and the swivel ball 50 is placed in its socket 49 and held in place by the clamping plates. During the up and down movement of the journal box 14, the same will rock the yoke lever 44 and consequently, the stub shafts 39 will be oscillated and this in turn, will bring about the operation of the pistons 35.

Now referring back to the pumps, it will be noted that each pump block 32, has formed therein an oil intake port 59 controlled by an inwardly opening one-way valve 59'. The bore 34 has formed therein a valve seat on which is fitted a one-way inwardly opening valve 60. A hose fitting 61 is threaded into the bore 34 and this fitting carries a flexible hose 62. The hose 62 in turn is connected with a fitting 63 carried by the cover 18 of the reservoir body. The fitting 63 also receives a flexible hose 64, which supplies oil to the applicator 65 for a car wheel. The applicator 65 forms the subject matter of an independent application for patent. It is to be noted, however, that there is an applicator 65 for each car wheel and that an independent pump serves each applicator.

In use of the lubricator, on the upstroke of a piston 35, the valve 59' will be lifted and oil will be sucked into a cylinder, and at this time the valve 60 is held on its seat. On the downstroke of a piston 35, the valve 59' will be held on its seat and the oil in the cylinder will be forced into the bore 34, lifting the valve 60 off of its seat. Consequently, the oil will be forced to an applicator 65.

The cover 18 can be provided with a suitable filler cap 66, and a screen 67 can also be carried by the cover 18 inward of the cap.

Much stress is laid on the arrangement of the operating yoke 44, and its connection with the attaching arm or plate 55, as desired adjustments can be readily made during the installation of the lubricator on the car truck. Likewise, the arrangement of the pumps and the operating stub shafts 39 therefor is also important.

The universal ball connection with the yoke 44 and the vertically disposed pivotal connection between the attaching arm 55 and the operating lever 52, allows movement in the connection between the yoke and the journal box to compensate for any shifting of the sprung and unsprung parts during travel of the locomotive. Thus, all strains are eliminated. It is to be noted, however, that the stud bolt 51 and the ball 50 are bodily lifted up and down during the raising and lowering of the journal box, which brings about the rocking of the yoke 44. The reservoir 17 is free to rock on its bolt 24 to compensate for the arc of movement of the lever 52 and the yoke 44.

Changes in details may be made without departing from the spirit or the scope of this invention, but what is claimed as new is:

1. In a flange oiler for car wheels, an oil reservoir, means rockably connecting the oil reservoir to a sprung part of a car truck, a pump in said reservoir including a cylinder and a pump plunger reciprocally mounted in the cylinder, an operating lever carried by the reservoir and operatively connected to the pump plunger, an attaching plate rigidly secured to an unsprung part of the car truck having a vertically disposed pivot, an operating arm movable on said pivot, a ball head carried by the operating arm for movement therewith, and a socket for said ball head carried by the lever.

2. A flange oiler for car wheels as set forth in

claim 1, and means for adjusting the ball head longitudinally of the operating arm.

3. In a flange oiler for car wheels, an oil reservoir, means rockably connecting the oil reservoir to a sprung part of a car truck, a pump in said reservoir including a cylinder and a pump plunger reciprocally mounted in the cylinder, a lever rockably mounted on the reservoir and operatively connected to the pump plunger, an attaching plate rigidly secured to an unsprung part of the car truck having a vertical pivot, an operating arm movable on the pivot, a stud rigidly carried

by the operating arm, and a universal joint connection between the stud and the lever.

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