

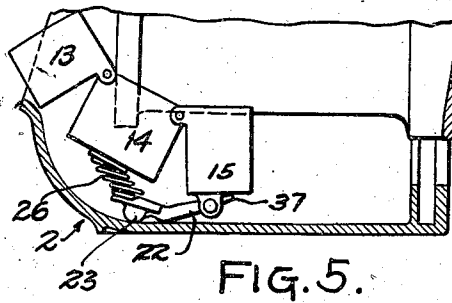
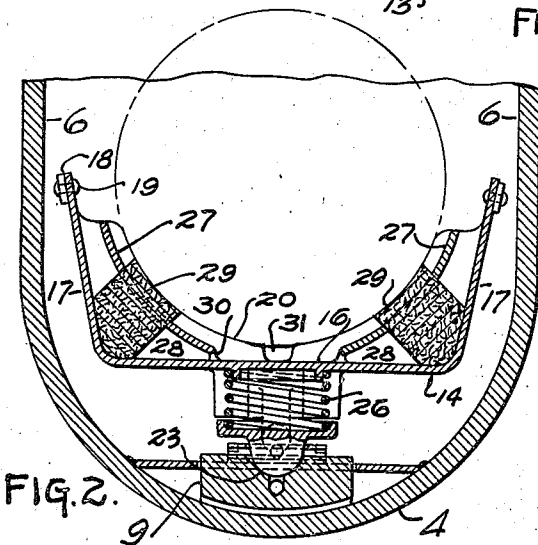
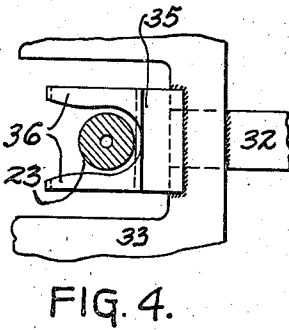
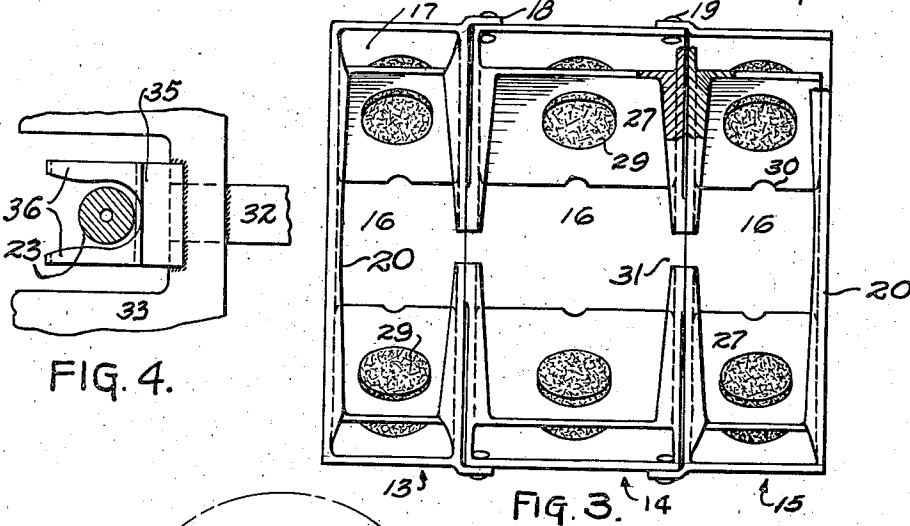
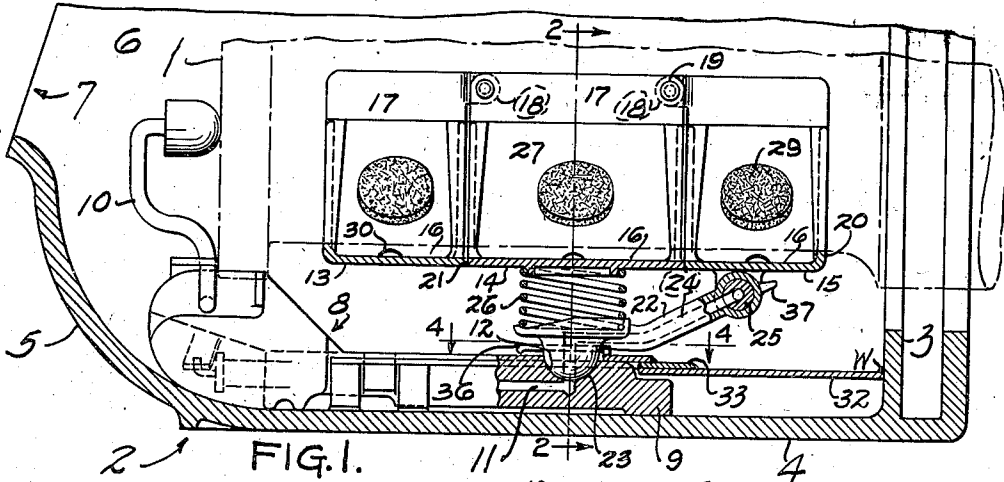
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2,425,186

LUBRICANT DISTRIBUTOR

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LUBRICANT DISTRIBUTOR

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11 Claims. (Cl. 308—84)

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The invention relates to the lubrication of railway axle journals, and more particularly to arrangements in which a pump rests upon the floor of the journal box beneath the journal and includes parts actuated by the play of the journal in the box to supply lubricant to a distributor above the pump and contacting the journal. Pumps of this general type are illustrated in J. J. Hennessy Patent 2,272,199, issued February 10, 1942.

With such arrangements, the pump proper and the distributor are formed separately and are inserted separately into the box beneath the journal and there assembled in cooperative relation. One object of the invention is to facilitate such assembly of the parts in the journal box.

Another object is to attain adequate distribution of lubricant to the journal over a substantial area, and preferably to provide a high level supply of lubricant for the distributor during intervals when the pump may be temporarily ineffective because the vehicle has been standing still or because its pump has fed all of a small quantity of oil in the sump formed by the bottom of the box or for other reasons.

These and other detail objects as will appear from the following description are attained by the structure illustrated in the accompanying drawings, in which—

Figure 1 is a vertical longitudinal section through an American Association of Railroads standard journal box equipped with a lubricator of the type described and also indicating the journal with which the box and the lubricator are associated.

Figure 2 is a vertical transverse section taken approximately on the line 2—2 of Figure 1.

Figure 3 is a top view of the distributor shown in Figures 1 and 2 with a portion sectioned horizontally to illustrate details of the construction.

Figure 4 is a detail horizontal section and view taken approximately on the line 4—4 of Figure 1.

Figure 5 is a vertical longitudinal section through the box similar to that shown in Figure 1 but drawn on a smaller scale and illustrating the insertion of the distributor into the box.

The axle journal indicated at 1 and the journal box indicated at 2 are of familiar construction, the box including a rear end wall 3 and an arcuate bottom wall 4 merging with an arcuate front wall 5 and upright side walls 6. The front wall has the usual opening at 7 enclosed by a door (not shown) which may be opened for insertion and removal of the journal bearing and wedge (not shown), the pump, oil, etc.

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The pump, indicated generally at 8, includes a shallow, narrow, elongated body 9 with inclined and diverging ears at the end nearest the front of the box upon which ears are mounted levers 10 disposed to engage the end of the journal and to operate pistons in the pump cylinders, as detailed in J. J. Hennessy Patent No. 2,331,835, issued October 12, 1943. The pump discharges through an outlet 11 into a shallow cup-like recess 12 in the top face of the pump body.

Lubricant is conducted from the pump and is distributed over the lower portion of the journal by a device comprising a series of pan-like members 13, 14 and 15, each having a bottom wall 16 and side walls 17. The side walls of the two end members 13 and 15 include ears 18 overlapping the side wall of the center member 14 and pivotally connected thereto by pins 19 extending transversely of the length of the device and of the axis of the journal. Each member 15 and 15 has end walls 20 with their upper edges shaped to the contour of the journal and thickened to increase the area of the bearing against the journal. The end walls of center member 14 have ledges 21 for abutting the opposing end walls of end members 13 and 15. The abutting surfaces will be ground to form tight joints between the successive members when they are in the normal position shown in Figure 1. The members may be inclined relative to each other about the pins 19 (see Figure 5) to facilitate insertion and removal of the distributor into and out of the space between the journal and the floor of the box.

A conduit 22 is hinged to the rear member 15 and depends therefrom with its lower end terminating in a ball-like element 23 arranged to be seated in recess 12 in the pump body. A passageway 24 extends through the conduit and its hinge pin 25 and leads to the interior of member 15 as detailed, for example, in the above-mentioned Patent 2,272,199.

A coil spring 26 is compressed between opposing seats on the lower end of the conduit and on the bottom of member 14, thrusting these parts in opposite directions and cooperating with conduit 22 to yieldingly support the distributor against the journal and holding the pump in position against the floor of the box.

Each member 13, 14 and 15 has inner arcuate walls 27 spaced from each other and from lower and outer walls 16 and 17 and forms, with the latter and with end walls 20, a reservoir 28 at each side of the journal and extending upwardly

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a substantial distance above the bottom of the individual member. The reservoirs are open at the top to receive oil which may be discharged from the rotating journal or be scraped from the journal by the bearing (not shown) and drip from the latter or, in an emergency, the reservoirs may be filled with oil manually with a hand oiler inserted through the box opening 7.

Each wall 27 is apertured to receive a plug 29 of felt-like material which projects inwardly and downwardly to the bottom of the reservoir and upwardly and outwardly to contact with the journal and feed oil to the journal by capillary attraction if the oil level above bottom wall 16 is not high enough to engage the journal. Preferably, these plugs will contain an insert or be treated with a chemical adapted to give off a dense volume of smoke when a predetermined temperature is reached greater than that encountered in the normal operation of the box but below that at which the bearing will be softened and a "hot box" condition arise.

Restricted openings 30 at the lower ends of the reservoir are provided for the slow drainage of lubricant back to the bottom of the reservoir where it may rise to a level to contact the lowermost portion of the journal. Notches 31 in the adjacent end walls of members 13, 14 and 15 provide for the flow of lubricant from end to end of the distributor.

A holding plate 32 is secured to the box rear wall 3, as by welding at W, and carries a U-shaped plate 33 arranged to extend alongside of the pump body and position the same longitudinally and transversely of the box. Plates 32 and 33 carry another plate-like member 35 having forwardly extending diverging fingers 36. As the distributor is shoved towards the rear of the box, conduit 22 will be engaged by fingers 36 and will be positioned centrally of the box and will be elevated to the approximate position shown in Figure 1 so that there will be room beneath the lower end of the conduit for the pump body to be inserted with its recess 12 beneath the conduit element 23. Prior to the insertion and removal of the distributor, and the pump, the box will be jacked up and the journal bearing and wedge removed and the box lowered, thus providing greater clearance between the journal and the floor of the box.

The arrangement described attains the objects set forth in the introductory portion of this specification. Each of the distributor members 13, 14 and 15 is readily constructed and assembled with the other elements and with the conduit 22 and, when these parts are assembled, with spring 26, the distributor unit is complete and may be manipulated and may function as described above. When disassociated from the pump and journal, the movement of conduit 22 away from the pan-like members is limited by a lug 37 at the rear of its hinge pan and adapted to engage the bottom of member 15. This avoids spring 26 dropping from the assembly.

Some of the features described may be used without necessarily including all of the other features described and the details of the construction may be varied substantially without departing from the spirit of the invention, and the exclusive use of those modifications coming within the scope of the claims is contemplated.

What is claimed is:

1. In a lubricant distributor for a railway axle journal, a plurality of pan-like members arranged for application end to end and lengthwise

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of the surface of a journal to be lubricated and connected to each other so as to swing about pivots extending transversely of the length of the distributor, and thereby provide for insertion of the distributor into a journal box past the end of the journal, and a conduit pivotally connected to one of the members and extending downwardly therefrom to contact a pump body, a spring associated with the lower portion of the said conduit and another of said members to support the latter and thru it the other members.

2. In a lubricant distributor for a railway axle journal, a plurality of pan-like members arranged for application end to end and lengthwise of the surface of a journal to be lubricated and connected to each other so as to swing about pivots extending transversely of the length of the distributor, and thereby provide for insertion of the distributor into a journal box past the end of the journal, and an arm pivotally connected to one of the members and extending downwardly therefrom to contact a support, there being spring means associated with the arm and another of the members and thrusting the free end of the arm and the members away from each other.

3. In a lubricant distributor for a railway axle journal, a series of three pan-like members arranged for application end to end lengthwise of the surface of a journal to be lubricated and connected to each other so as to swing about pivots extending transversely of the length of the distributor, and thereby provide for insertion of the distributor into a journal box past the end of the journal, and a conduit pivotally connected to the inner end pan member and extending downwardly therefrom to contact a pump body on which the distributor is mounted and to swing in a vertical plane extending lengthwise of the lubricator, and spring means associated with the conduit and the middle one of the pan members to thrust the conduit downwardly against the pump body and to thrust the middle pan member upwardly against the journal and to align the middle pan member with the end pan members.

4. In a lubricator distributor for a railway axle journal, a series of pan-like members concaved upwardly transversely of their sequence, contiguous members having overlapping portions at their upper side edges pivoted together to hinge the members on each other, a conduit pivotally depending from one of said members with its lower swinging end arranged to engage a support, and spring means carried by said conduit and thrusting upwardly on another one of said members so that the abutting edges of the members will be thrust together when the members engage the surface of a journal to which the distributor is applied.

5. In a lubricant distributor for a railway axle journal, a plurality of pan-like members assembled end to end to form a composite distributor, each member having a web forming bottom and side walls, and having end walls with upper edges shaped to contact the lower face of a journal to which the distributor is applied, and inner arcuate walls spaced from said web and spaced apart transversely of the distributor and forming with said web and end walls reservoirs at the sides of the distributor open at the top, to receive lubricant carried above the distributor by the journal and then discharged, and apertured at the bottom to return such discharged lubricant to the bottom of the distributor.

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6. A lubricant distributor as described in claim 5 in which an arcuate wall is apertured and plugged with a felt-like member projecting in one direction into the reservoir behind the wall and in the other direction into position to contact the journal to which the distributor is applied.

7. A lubricant distributor as described in claim 5 in which an arcuate wall is apertured and plugged with a felt-like member projecting in one direction into the reservoir behind the wall and into contact with said web at the bottom of the reservoir and in the other direction into position to contact the journal to which the distributor is applied.

8. A lubricant distributor comprising a series of pan-like members as described in claim 5 arranged end to end with their abutting end walls forming a tight joint, there being a passageway from one member to the other through the abutting end walls, and one of the members being provided with a depending spring-thrust conduit arranged to support the member from a pump below the distributor.

9. A lubricant distributor comprising a series of pan-like members as described in claim 5 arranged end to end and connected adjacent their ends by pivots extending transversely of the members through the upper portions of their outer side walls, spring means for supporting an intermediate member so that the contiguous members are suspended from the pivots with the weight of the members thrusting their ends into contact with the intermediate member.

10. In combination with a railway axle journal box adapted to have a lubricant pump supported on the inner bottom wall of the box and provided with a cup-like depression in its upper face, a lubricant distributor comprising a pan-like structure arranged for application to the lower portion of a journal on which the box is mounted, and having an arm hinged to the structure and depending therefrom so that its lower end may

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seat in said depression, there being a spring compressed between the swinging end of the arm and the member to support the member against the journal, and a plate-like guide and support fixedly secured to the inner wall of the box with fingers extending towards the front of the box and spaced above the floor of the box to receive the lower end of the arm between them and to support the distributor in the absence of the pump.

11. In combination with a railway axle journal, a box carried thereon and a lubricant pump in the box having an upwardly facing outlet, a lubricant distributor comprising a pan-like structure for application to the journal and having a conduit pivoted to its inner end and depending therefrom, there being spring means for supporting the member from the pump, and a guide member secured to the rear part of the box and provided with forwardly and horizontally diverging fingers extending over the pump and arranged to receive the lower end of the conduit between them and guide said end in position over the pump outlet as the distributor is inserted through the open end of the box and between the pump and journal.

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