March 21, 1939. R. W. MILLER 2,150,935

JOURNAL LUBRICATOR

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Fig. 1.

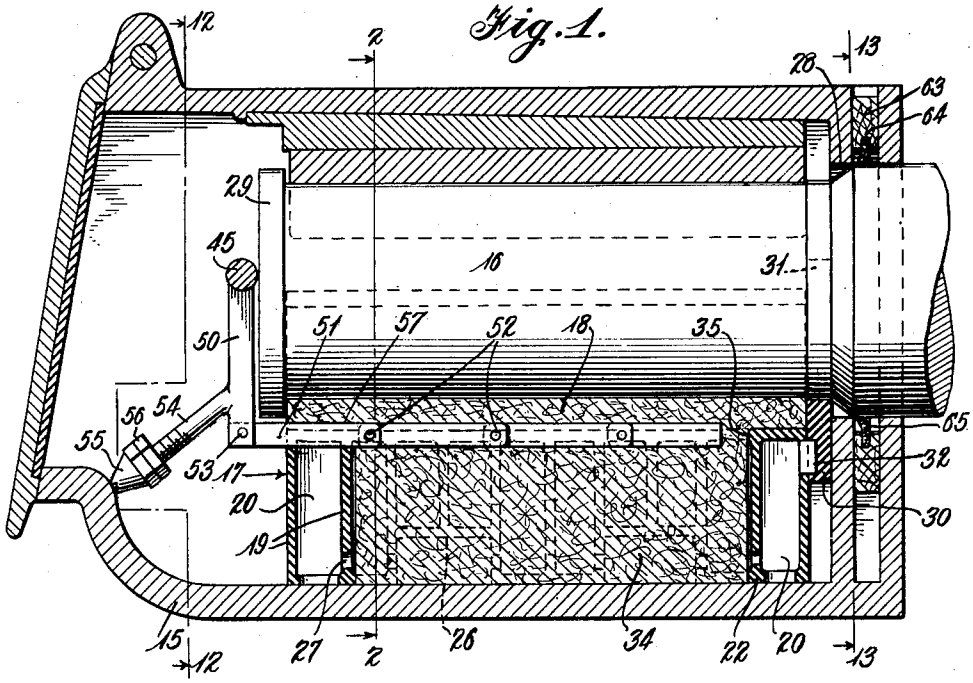
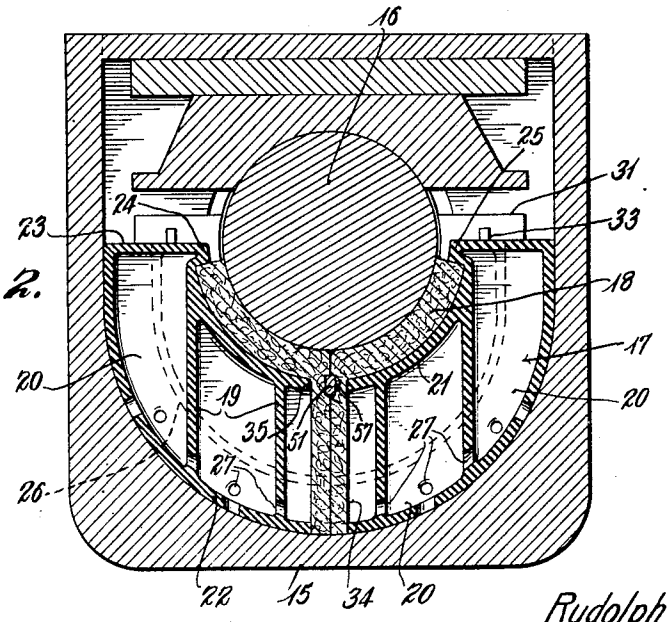


Fig. 2.



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Fig. 3.

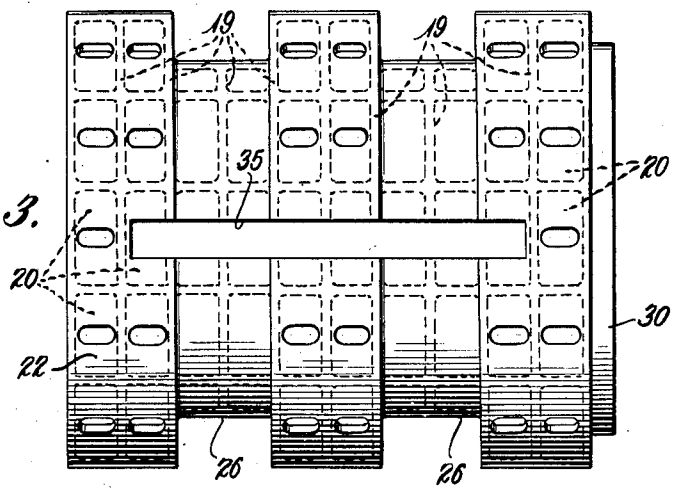


Fig. 4.

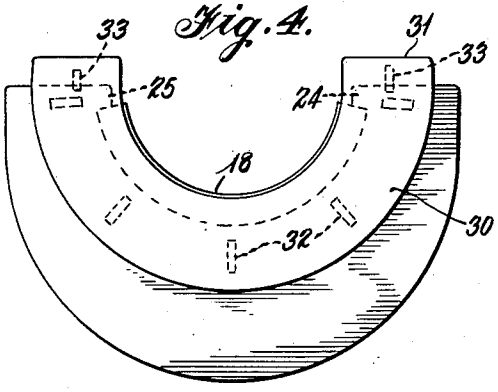


Fig. 5.

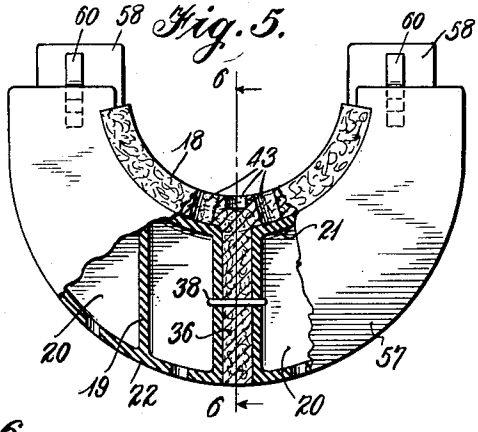
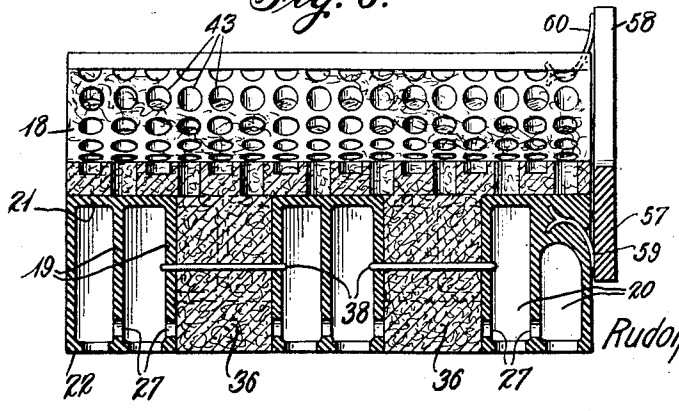


Fig. 6.



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Fig. 7.

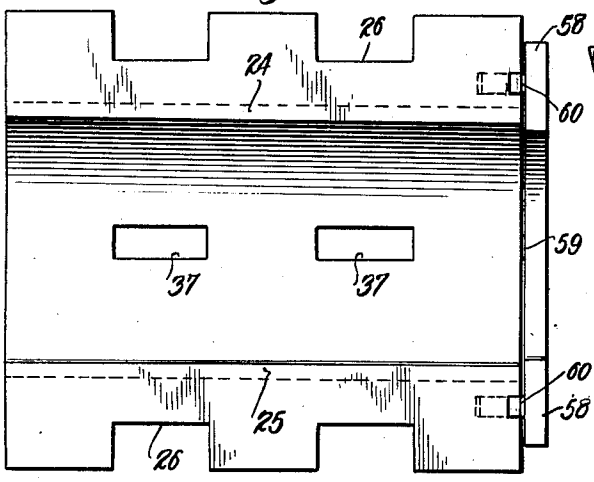


Fig. 8.

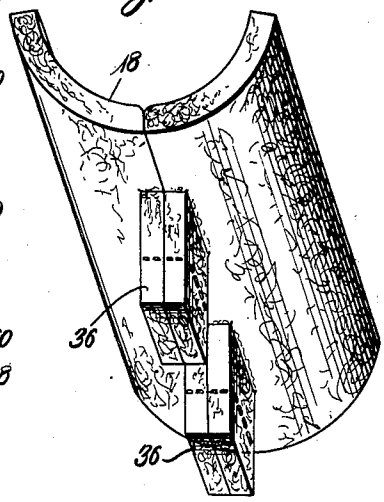


Fig. 9.

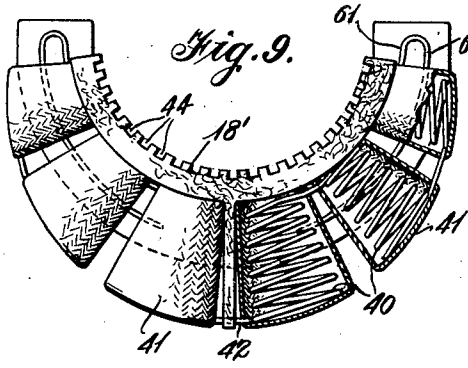


Fig. 10.

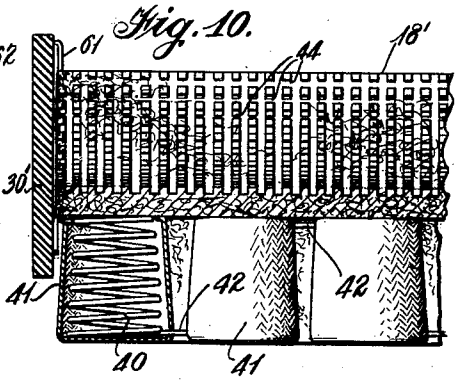
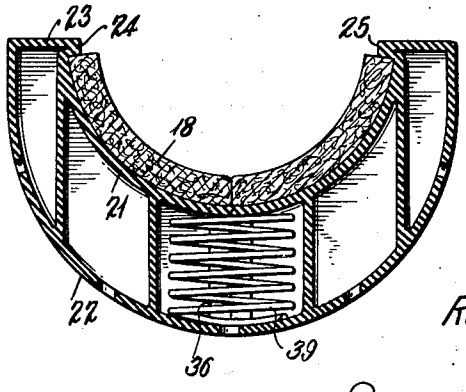


Fig. 11.



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Fig. 12.

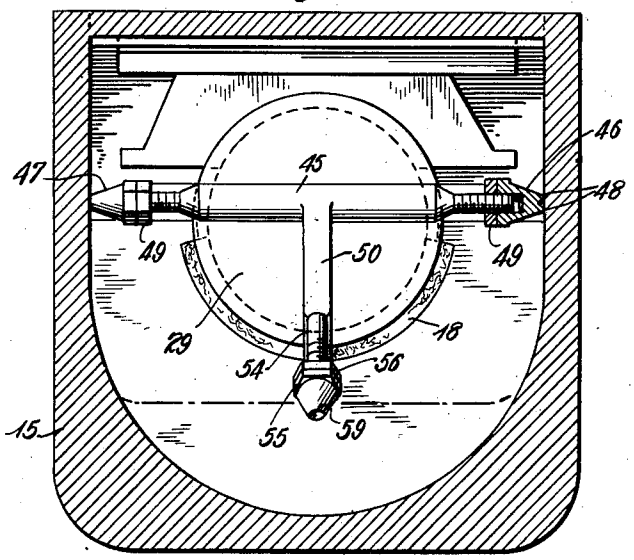
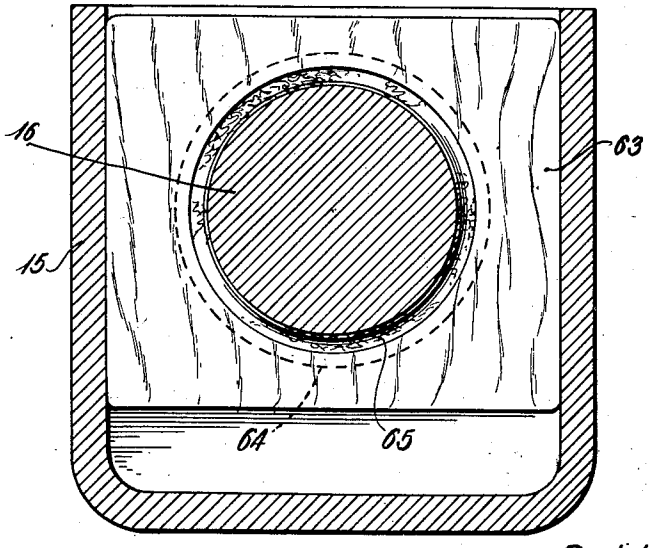


Fig. 13.



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Patented Mar. 21, 1939 2,150,935

UNITED STATES PATENT OFFICE

2,150,935

JOURNAL LUBRICATOR

Rudolph W. Miller, Winona, Minn.

Application March 17, 1936, Serial No. 69,394

4 Claims. (Cl. 308—88)

The invention relates to journal lubricators for railway car journals and has as an object the provision of a lubricator pressed against a surface of the journal radially by a mass of resilient material reacting between an absorptive pad in contact with the journal and the bottom of the journal box.

It is a further object of the invention to provide means for applying sufficient light pressure of the pad over substantially its entire area against the journal.

It is a further object of the invention to provide a resilient mass reacting against a pad and having absorptive means projecting from the pad through the body of the mass to dip into oil in the bottom of the journal box.

Further objects of the invention will appear from the following description when read in connection with the accompanying drawings showing illustrative embodiments of the invention, and wherein:—

Figure 1 is a vertical longitudinal section of a journal box showing a journal in elevation with the lubricator in place;

Fig. 2 is a vertical transverse section on line 2—2 of Fig. 1;

Fig. 3 is a bottom plan view of the structure of the lubricator shown in Fig. 1;

Fig. 4 is an end view of the lubricator removed from the box, seen from the left of Fig. 1;

Fig. 5 is a front end view partly broken away of a different form of the invention;

Fig. 6 is a longitudinal section on line 6—6 of Fig. 5;

Fig. 7 is a plan view of the structure of Fig. 5 with the absorptive pad removed;

Fig. 8 is a perspective view of the absorptive pad of Figs. 5 and 6 removed from the resilient material;

Fig. 9 is a transverse section of a still further form of the invention;

Fig. 10 is a longitudinal section of the structure of Fig. 9;

Fig. 11 is a transverse section of a still further form of the invention;

Fig. 12 is a section on line 12—12 of Fig. 1; and

Fig. 13 is a section on line 13—13 of Fig. 1.

As shown in Figure 1, the journal box is indicated at 15, the journal at 16, and the lubricator indicated generally by 17.

As shown in Figures 1 to 4 inclusive, the lubricator comprises an absorptive pad 18 of a size to extend partially around the journal and preferably formed of felt.

To press the pad 18 against the journal box, the resilient mass is shown as formed of a plurality of partitions 19 arranged longitudinally and transversely to produce a plurality of cells 20, there being provided end walls for the cells at 21 and 22. Since the transverse partitions extend upwardly to the point 23 and are presented edgewise toward the journal, there will be provided a radial pressure at all points upon the absorptive mass 18 relative to the journal to press the pad thereagainst. The edges of the outer surface of the resilient mass are desirably formed to extend over the edges of the pad as at 24, 25, to prevent the pad from shifting by attractive force of the journal.

As shown in Figure 3 at 26, certain of the cells of the resilient mass are inset from others thereof to provide passage of oil to the bottom of the journal box about the sides of the lubricator. To provide for passage of oil from one cell 20 to the next, openings 27 are desirably formed in the partitions 19. To seal the opening 28 in the journal box about the journal, which opening is left for the passage of the enlarged head 29 of the journal into the box, there is shown an arcuate plate 30 secured to the end of the resilient mass and passing upwardly as shown to the point 31, see Figure 2, above the region where oil may be expected to leak out of the box.

The plate 30 is desirably secured to the resilient mass in a reinforced manner by ribs 32, 33.

The material of which it is preferred to make the resilient mass of Figures 1 to 7 inclusive and 11 is soft rubber and desirably sponge rubber, it being understood that all of the partitions 19 and walls 21, 22 are formed of this material. The plate 30 may be of the same material or of solid partially vulcanized rubber.

To conduct oil to the pad 18 from the bottom of the box, the same is desirably formed with a rib 34 extending through a slot 35 in the body of the mass. An efficient construction for the pad and rib 34 is that shown in Figure 2 where portions of the pad and rib are integral, as will be obvious.

In the form of Figures 5 to 8 inclusive, the rib 34 is replaced by projections 36 and in this form of the invention the slot 35 is replaced by separate slots 37 for passage of the ribs 36. In this form of the invention certain of the ribs 19 of the resilient mass are shown in Figures 5 and 6 as being united to the ribs 36 by ties 38. In the form of Figure 11, a coil spring 39 is shown surrounding a rib 36 to supplement the action of the rubber resilient mass at the bottom of the box which is the point of greatest need of resilience.

In the form of the invention of Figures 9 and 10, the resilient mass is shown in the form of a plurality of springs 40 disposed radially of the pad 18' and housed in casings 41 of absorptive material which conduct oil from the bottom of the box to the pad 18'.

The mass in any form of the invention being exceedingly soft and resilient may be compressed for introduction into the journal box to enable the same to be flexed and slipped under the journal and because of its softness and flexibility, the pressure against the pad will not be excessive but will be uniform through substantially its entire area.

A difficulty with a lubricator using a preformed pad as an oil applicator, particularly where any dust or dirt gains access, is that the journal contacting surface becomes glazed and therefore is sealed so as to prevent passage of oil through the glazed surface. To prevent such sealing, the surface of the pad 18 is desirably broken up into ridges or fingers. This may be accomplished in the manner shown in Figure 6 by formation of a large number of recesses or perforations, as 43, in the journal contacting surface, which may be produced, for example, by use of drills and desirably completely penetrate the pad. Alternatively, the surface may be treated in the manner illustrated in Figures 9 and 10 wherein intersecting saw kerfs 44 are shown. The latter expedient may be applied omitting the kerfs transverse to the axis of the journal and forming only parallel kerfs parallel with or oblique to the said axis. In any case, the recesses or kerfs should be sufficiently closely spaced as to allow the ridges or journal contacting portions to flex slightly under friction of the journal whereby to break any glaze as it starts to form.

To hold any form of the lubricator from slipping forwardly in the box and from twisting laterally, there is shown in Figures 1 and 12 a rod or bar 45 having nuts 46, 47 bearing cutting members 48 at their ends, and retained by lock nuts 49.

Projecting downwardly from bar 45 is a bar or rod 50 projecting past the end of the lubricator, as shown in Figure 1.

The felt 18 is provided with a flat rod 51 projecting a major portion of its length as shown in Figure 1 and formed of sections pivotally united by pins 52. The flexibility of the rod is necessary in order that the same may bend with the lubricator when the device is slipped into an existing journal box. The rod 51 being flattened will prevent twisting of the lubricator if the rod itself is held from twisting. To this end, the rod is shown as projecting into a slot in the lower end of the bar 50 and desirably is pinned therein as by pin 53.

To hold the rods 50 and 51 and therefore the lubricator from moving forwardly in the box, a rod 54 is shown welded to the rod 50 and being threaded is provided with a nut 55 and lock nut 56 similar to the nuts 46, 47, 49. When the lubricator has been slipped into place with the bar 52 therein, the rod 50 is pinned or slipped over the end of bar 51, and the nuts 46, 47 expanded to cause them to bite into the inner surface of the box. Also the nut 55 is screwed outwardly so as to cause the same to impinge upon the end of the box as shown in Figure 1. The lubricator will thus be firmly held in its proper position.

In Figure 6 is shown another form of structure for causing the seal 30 to be pressed against the margin of the opening through which the hub 29 is inserted into the box. As there shown, the portions 57, 58 are free of the mass of rubber making up the spring portion of the lubricator.

Anchored in the rubber of the mass are metal springs 59, 60 which press the flaps of the sealing member 30 tightly against the end wall of the journal box about the said opening. If necessary these springs allow the portion 57 or 58 of the sealing member 30 to flex when the lubricator is being installed or removed from the box.

In the form of the invention of Figures 9 and 10, the springs 40 are shown as formed of a continuous wire from alternate ends of each spring to the next end, and the ends of the wire adjacent the back of the lubricator may be turned upwardly at portion 61 and then downwardly at portion 62 so as to abut the sealing member 30' and resiliently press the same against the margins of the opening through which the journal is introduced into the box.

An additional sealing means is shown in Figures 1 and 13. Instead of the usual seal, there is shown a wooden seal 63 having an annular groove 64 in which is seated an annulus of flexible material, as felt. The ring of felt is desirably formed slightly less in internal diameter than the outer diameter of the end 29 of the journal, so that when the journal is forced through the opening in the felt it will be slightly flexed, as shown in Figure 1, and thus caused to form a tight seat with the axle.

It is found that material such as felt if oiled initially will not wear through long service, whereas the usual wooden seal rapidly becomes worn so as to fail to exclude dust, and the access of dust to the journal bearing is a potent cause of the formation of glaze and of interference with lubrication.

Minor changes may be made in the physical embodiments of the invention within the scope of the appended claims without departing from the spirit thereof.

I claim:

1. A journal lubricator comprising, in combination: an absorptive pad to contact with the surface of a journal; a resilient mass comprising sponge rubber acting in compression between the bottom of a journal box and said pad to press the surface of said journal; and absorptive means engaging said pad and extending through said mass to dip into oil in the journal box.

2. A journal lubricator comprising, in combination: an absorptive pad to contact with the surface of a journal; a resilient mass comprising cells surrounded by resilient rubber partitions having their edges directed toward the surface of the journal and by end closures, one parallel with the surface of said pad and one contacting the inner surface of the journal box; said partitions and closures formed with openings for access of oil to the cells and for ingress and egress of air; said closures formed each with a slot parallel with the axis of the journal; and a rib of absorptive material engaging said pad and extending through said slots to dip into oil in the journal box.

3. The combination of claim 1 with a coiled spring surrounding said absorptive means and surrounded by said resilient mass, to supplement the spring action of said mass.

4. A journal lubricator comprising, in combination: an absorbent pad to contact the surface of a journal and resilient means to press said pad into such contact; a sealing flap carried by the lubricator to cover the margin of the journal receiving opening of a journal box; and resilient means carried by the lubricator to press said flap against said margin.

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