June 2, 1964 J. J. HENNESSY, JR 3,135,563

RAILWAY JOURNAL BOX LUBRICANT DISTRIBUTOR

Filed Dec. 9, 1960 3 Sheets-Sheet 1

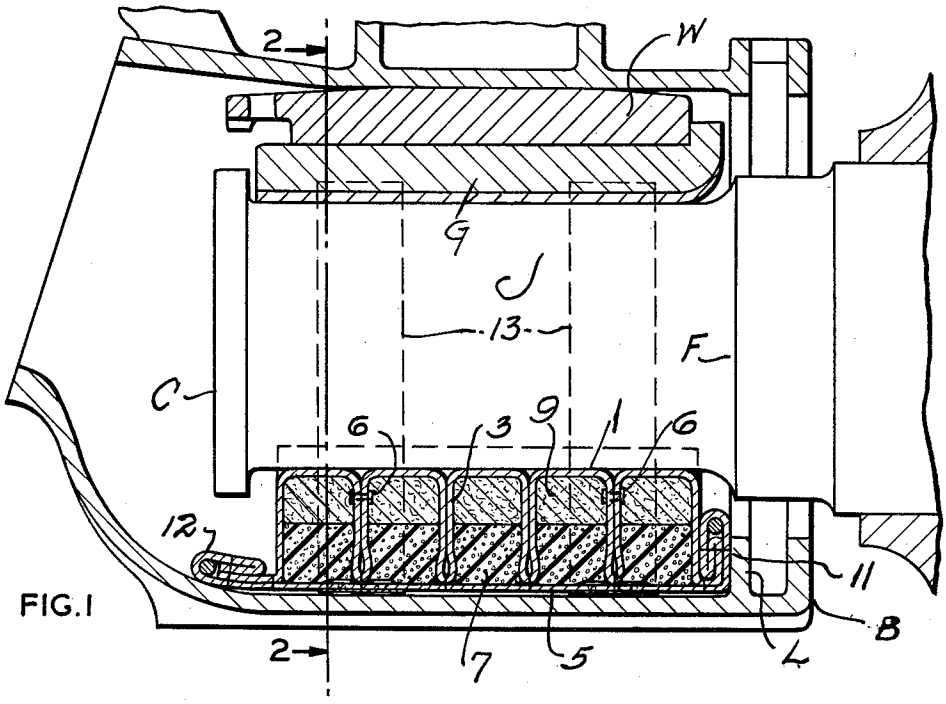


FIG. 1

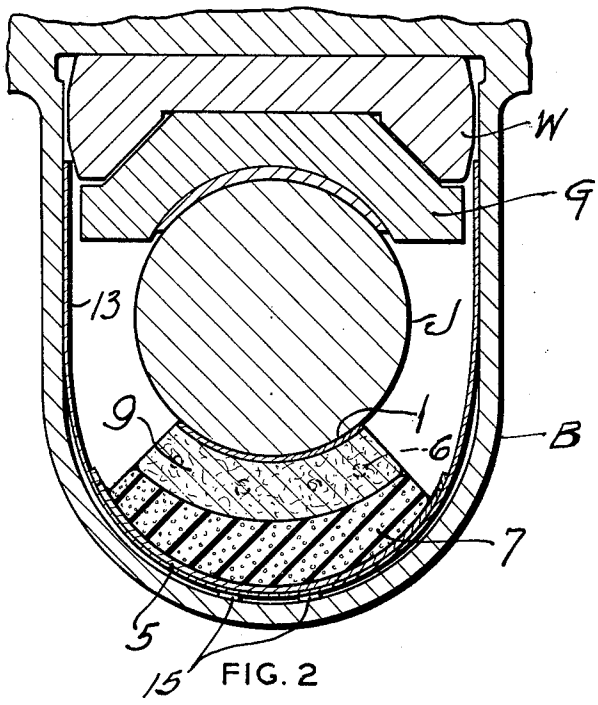


FIG. 2

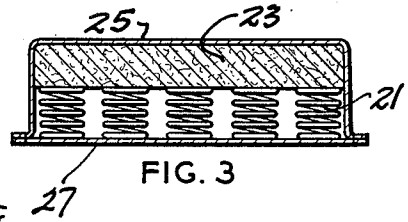


FIG. 3

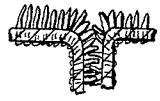


FIG. 1-A

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June 2, 1964 J. J. HENNESSY, JR 3,135,563

RAILWAY JOURNAL BOX LUBRICANT DISTRIBUTOR

Filed Dec. 9, 1960 3 Sheets-Sheet 2

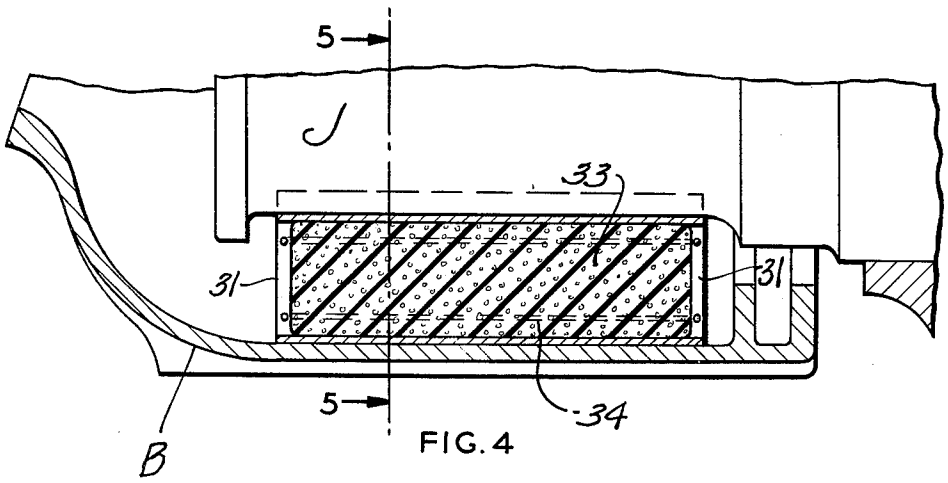


FIG. 4

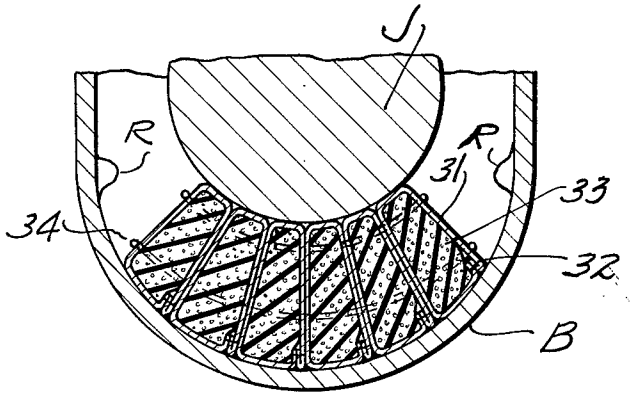


FIG. 5

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June 2, 1964 J. J. HENNESSY, JR 3,135,563

RAILWAY JOURNAL BOX LUBRICANT DISTRIBUTOR

Filed Dec. 9, 1960 3 Sheets-Sheet 3

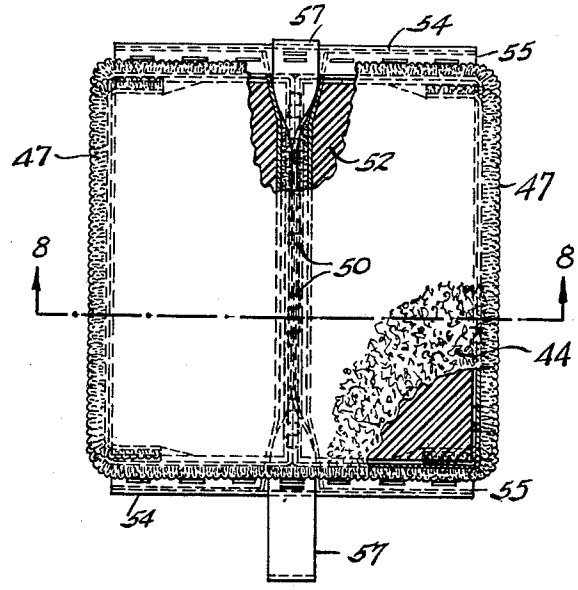


Fig. 6.

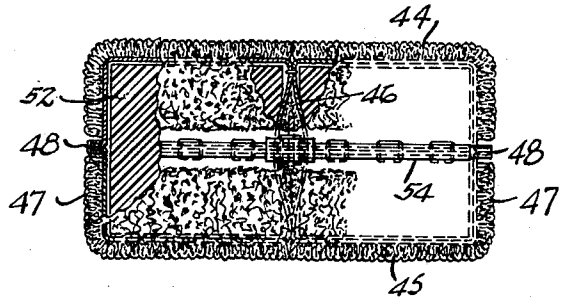


Fig. 7.

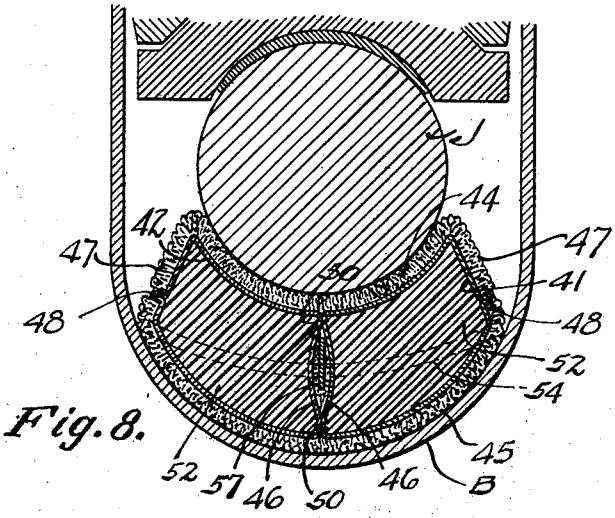


Fig. 8.

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RAILWAY JOURNAL BOX LUBRICANT DISTRIBUTOR

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Filed Dec. 9, 1960, Ser. No. 75,879
4 Claims. (Cl. 308—88)

This application is a continuation-in-part of an application filed April 18, 1956, Serial No. 578,966.

The invention relates to the lubrication of railway axle journals and comprises a pad-like structure adapted for insertion in a railway axle journal box beneath the journal and resting upon the bottom of the journal box and feeding lubricant by capillary attraction to the surface of the journal.

One object of the invention is to effect a plurality of upright wick-like elements, leading from the oil in the bottom of the box direct to the journal and, in addition, a substantially continuous wick-like element extending throughout substantially the entire length of the journal and contacting the lower portion of the journal.

Another object is to assure contact between the horizontal wick-like element and the journal, irrespective of wear, jarring of the distributor, or other causes.

Another object is to facilitate ready insertion and removal of the distributor between a journal and the bottom of the journal box without the necessity of jacking up the journal to afford more than the usual running clearance between the journal and the bottom of the box.

Another object is to prolong the life of the unit by making parts thereof renewable at intervals.

Another object is to restrain the distributor against shifting by the rotation of the journal, without requiring the provision of shoulders or like elements secured to the journal box wall.

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

FIGURE 1 is a longitudinal vertical section through a journal box of Association of American Railroads (A.A.R.) standard form and mounted upon a journal and having the distributor inserted between the journal and the bottom of the box.

FIGURE 1ª is a detail section through the woven fabric material forming the exterior of the pad, and drawn to an enlarged scale.

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

FIGURE 3 is a detail section taken transversely through a distributor embodying another form of the invention.

FIGURE 4 corresponds generally to FIGURE 1 but shows another form of the invention.

FIGURE 5 is a transverse section on line 5—5 of FIGURE 4.

FIGURE 6 is a top view of a distributor pad embodying a further form of the invention, the pad being sectioned horizontally in part to better illustrate the structure.

FIGURE 7 is an end view of the distributor pad shown in FIGURE 6 and is sectioned vertically in part to better illustrate the construction.

FIGURE 8 is a vertical section through the pad but showing it applied to a railway axle box, journal and bearing and showing the pad distorted by the application as it would appear approximately on line 8—8 of FIGURE 6.

A journal box B has the usual A.A.R. contour and is carried on the journal J by the usual bearing G and wedge W. The exterior of the lubricating pad consists of woven

fabric of cotton or similar fibrous material which has wick-like properties well adapted for conducting lubricant by capillary action. In the form shown in FIGURES 1 and 2 the pad exterior is formed by a continuous sheet of tufted cable yarn with a projecting pile, as indicated in FIGURE 1ª, but shown in generally parallel solid lines in the other figures. Portions **1** of the sheet extend parallel and concentric to the journal surface and portions **3** of the sheet extend radially of journal and are folded double to form upright loops or double wall partitions shaped apart lengthwise of the box and journal. Several such loops are positioned between the ends of the pad. Preferably the lower ends of the loops near the fold creases are stitched or otherwise secured to a bottom section **5** of the sheet and the upper portions of the loops are secured together by rivets **6** spaced well below top wall **1** to avoid contact with the journal, and this structure forms a plurality of compartments or pockets elongated transversely of the journal and preferably having open ends.

An elongated strip **7** of elastic material, preferably of synthetic rubber corresponding generally to the product sold under the trade name "neoprene," is inserted endwise in each compartment. A pad **9** of relatively stiff felt or similar material is inserted in each compartment between the strip **7** and the top wall of the compartment and is of sufficient depth to compress strip **7** sufficiently to maintain the upright partitions **3** extended and upper sheet **1** in contact with the journal. Although the synthetic rubber of strips **7** is more resistant to high temperatures than natural rubber would be, the strips are insulated by felt pad **9** from heat resulting from frictional contact between the journal and the top face of the distributor. This avoids shrinkage of the strips **7** because of high temperature from the journal friction, and thus increases the useful life of strips **7**. In the event of exhaustion of oil, pads **9** and strips **7** may char so as to give off smoke and odor and warn of the need for supply of oil to avoid serious hot box trouble.

At the ends of the distributor the cover material is overlapped and secured together to form tabs **11**, **12**, the first of which opposes the journal box rear wall L to hold the distributor in position lengthwise of the box away from journal fillet F.

The weave of the loop-forming material, the stiffness of the felt pads and the friction on the bottom wall of the journal box afforded by the pressure of elastic strips **7** will tend to hold the distributor against shifting transversely of the box by rotation of the journal, but preferably such movement is further and positively resisted by the use of thin flexible metal bands **13** which extend transversely of the box beneath the device and up the side walls of the journal box, terminating adjacent to the journal bearing B and the wedge D so as to engage the same if there should be an unusual condition causing the lubricator to shift about the journal axis. Bands **13** are riveted at **15** to the lower sheet section **5**.

FIGURE 3 illustrates another form of the invention in which the outer cover or shell and the compartments of the distributor correspond to that previously described. A series of helical metal springs **21** are tied together and inserted in each compartment beneath felt pads **23** and yieldingly thrust the cover top sheet **25** against the journal and thrust the bottom sheet **27** of the distributor against the bottom of the journal box.

FIGURES 4 and 5 illustrate another form of the invention in which the lubricator comprises a plurality of individual hollow pockets or compartments formed by separate sections **31** of the same cover material as previously described. The ends of each section are stitched together at **32** and each compartment is filled by a single

strip 33 of elastic material of greater depth than that shown in FIGURES 1 and 2 and inserted through an open end of the compartment. The sections 31 may be of increased length as to make the compartment walls of double thickness if desired.

One or more cords 34 are passed through the end portions of the fabric and around the compartments to hold them assembled and to retain elastic strips 33 in place. The exposed portions of the cords may be grasped by a workman to remove the pad from beneath the journal.

This pad is shown with its compartments extending lengthwise of the journal and the rotation of the journal will tend to thrust the compartments toward each other to provide a more nearly continuous surface in contact with the journal.

FIGURES 4 and 5 do not illustrate the positioning strips 13 shown in FIGURES 1 and 2, although they may be used if desired. Many journal boxes have an integral rib R at each side which would engage and halt the movement of a pad about the journal even if the friction of the pad against the box wall did not hold the pad against excessive movement.

FIGURES 6, 7 and 8 illustrate another form of the invention in which two compartments are formed by sheets 41, 42 of woven fabric with projecting tufted cable yarn, each compartment being an elongated unit with top and bottom walls 44, 45 respectively, an inner upright wall 46 and an outer upright wall 47 formed by the end portions of the strip stitched together at 48 to form a seam extending lengthwise of the compartment. The adjacent upright walls 46 have connections 50 near but spaced from the top and bottom of the pad at spaced intervals lengthwise of the pad. A cushion 52 substantially rectangular in cross section corresponds generally to those previously described but completely fills each compartment and extends from end to end of the pad and is readily distortable, when the pad is inserted between a journal J and the bottom B of the journal box, as indicated in FIGURE 8.

The contiguous upright walls 46 may gap intermediate their connections 50 near the top and bottom of the pad but the projecting piles of the yarn will intermingle and form an unobstructed yarn-lined passageway for movement of lubricant by capillary attraction from the bottom of the pad to the top of the pad where it will be distributed by the upstanding tufted yarn to the entire surface of the journal in contact with the pad.

At each end of the pad is an elongated strip 54, of metal or semirigid plastic or other material which is stiff longitudinally but flexible transversely of its length so that the end portions of the strip may accommodate themselves to the sides of the journal box, as best shown in FIGURE 8. The corner edges 55 of the ends of the strip will be thrust against the box walls and resist any tendency of the distributor pad to rotate with the journal and ride up the box side walls.

A strap 57 of canvas extends through the pad and is looped about and secured to each sheet 54 and is utilized to pull the pad out from under the journal when it is to be replaced.

Each form of the invention comprises a unit readily placed beneath the journal, and replaced when desired, and provides a series of thick wick-like upright webs positioned at the ends of the pads and at intervals between the ends of the pad and merging at their upper edges with a substantially continuous top web extending throughout the length of the journal and throughout the lower quarter of its periphery. The top web is yieldingly thrust against the journal. The distributor material substantially fills the space in the box beneath the journal and prevents splashing of oil which might otherwise result in losses, particularly through the openings in the rear walls of the box. Also the large volume of distributor material leaves little space for air and contributes to early charring and smoking, in the absence of oil, rather than more rapid combustion and greater heat and less warning as would characterize a less solid distributor.

The synthetic rubber strips have a cellular structure accommodating a greater quantity of oil than would be available if the compartments were filled with felt. The individual strips may be removed from the compartments and the pad readily cleaned, and the strips replaced, or other strips substituted.

It will be understood that the folds forming the compartment upright walls may extend crosswise of the journal box, as shown in FIGURES 1 and 2, and similarly the compartment upright walls of the form first described may extend lengthwise of the journal as shown in FIGURES 4 and 5. However with the pad placed under the journal lengthwise, better contact is had with the journal by the two center compartment portions of the pad. Due to the block-like form of the pad the compartment-forming units remain vertical when in use and the pad will not build up excessive pressures against the journal when the distance between the box bottom wall and the pad decreases. The irregular surface presented to the journal and the through compartments between the units allow sand, dust, cinders, etc., that may accumulate on the top of the pad, to work down into the pad away from the journal and where such foreign matter would do the least harm. This avoids clogging the feeding or glazing the surface applied to the journal. This results in a greater quantity of oil delivered to the journal by these two sections of the pad than would be the case if placed under the journal crosswise.

The distributor is characterized by its high capacity for feeding lubricant uniformly to the journal throughout the width and length of the pad, due to the plurality of wide wick-like walls leading to all portions of the top face of the distributor and the maintenance of its upper wall against the journal irrespective of the pressure or the lateral thrust on the pad.

The device is economical to manufacture, simple to install, and effective for its intended function of feeding lubricant to the journal as it is required and avoiding a surplus supply which may be lost through the openings in the journal box rear wall.

Other variations in the details of construction and elimination of certain features may be made without departing from the spirit of the invention and exclusive use of all forms of the invention covered by the claims is contemplated.

What is claimed is:

1. A railway journal box lubricant distributor pad, comprising sheet material of flexible fabric with tufted yarn having high capillary attraction characteristics projecting from one side of the fabric, spaced apart portions of the sheet material being disposed vertically at the sides of the pad to form upright side walls and intermediate portions of the sheet material being folded double to form pairs of adjacent upright intermediate walls spaced from said side walls, and other portions of the sheet material being disposed horizontally and extending between one of the upright intermediate walls to the next one of the upright intermediate walls, and from each of said side upright walls to an adjacent one of the upright intermediate walls, elements securing together the adjacent upright intermediate walls at points near said horizontally disposed portions to form of said horizontally disposed portions a substantially continuous horizontal wall across the pad, a further portion of said sheet material extending across the folds of said doubled portions and secured directly to said folds to form a second horizontal wall across the pad substantially spaced vertically from said first-mentioned horizontal wall, all of said upright and horizontal walls forming a plurality of compartments, individual fillers of compressible material in said compartments and holding them distended with the two horizontal walls spaced apart vertically to the extent of

the height of the upright walls formed by the doubled portions.

2. A railway journal box lubricant distributor pad, according to claim 1 in which the compartments have open ends and the fillers are individually removable from the compartments through said ends.

3. A railway journal box lubricant distributor comprising a pad according to claim 1, having elongated strips of flexible sheet metal secured to the pad and extending upwardly from the sides of the pad and substantially beyond the top of the pad to dispose the upper end edges of the strips in position to engage portions of a journal box, to which the distributor is applied, above the pad to resist movement of the distributor in the box.

4. A railway journal box lubricant distributor pad with an exterior surface formed by a sheet of flexible material covered on one side with tufted yarn having high capillary attraction characteristics, a portion of said strip forming a substantially horizontal wall from side to side of the pad, further portions of said strip at the ends of said wall being disposed vertically from the ends of said wall, additional relatively short portions of the strip forming horizontal extensions from the outer ends of the vertically extending portions over and spaced above said horizontal wall, and additional portions of the strip extending vertically back to said horizontal wall and there being doubled on itself, said horizontal extensions and doubled portions being repeated to form a series of compartments arranged side by side across the pad, elements at upper and lower parts of the vertically extending portions holding the doubled portions together, with the relatively short horizontal extensions coacting to comprise a substantially horizontal wall from side to side of the pad, spaced from the first-mentioned horizontal wall, and resilient fillers inserted in said compartments and holding their vertical portions distended, the tufted yarn side of said strip facing outwardly of the compartments, whereby said vertical portions form continuous wick-like passages for lubricant leading from one of said horizontal walls to the other.

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