Oct. 14, 1958 L. E. HOYER ET AL 2,856,248

JOURNAL BEARING LUBRICATORS

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FIG. 1

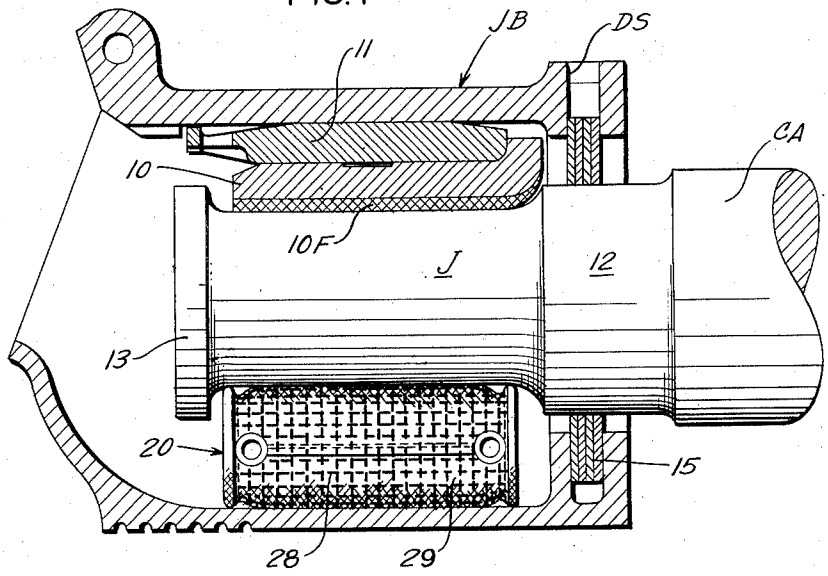
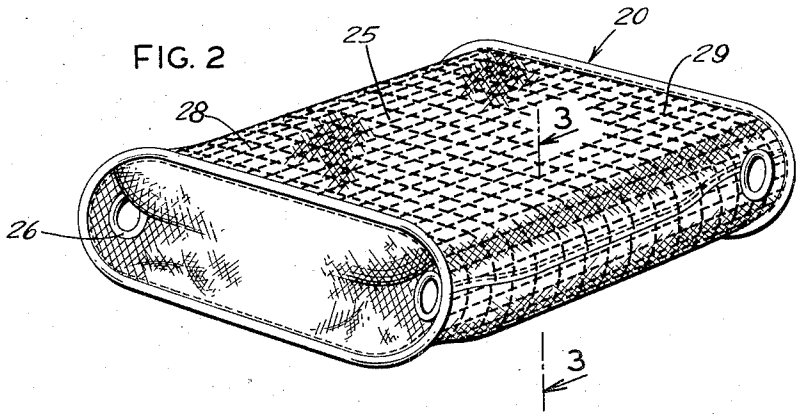


FIG. 2



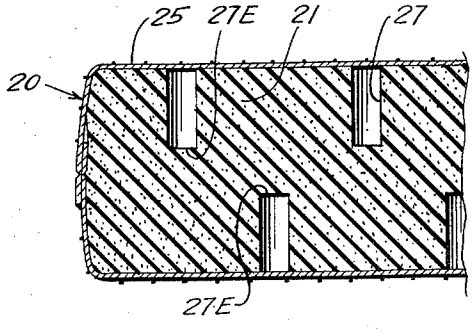


FIG. 3

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FIG. 4

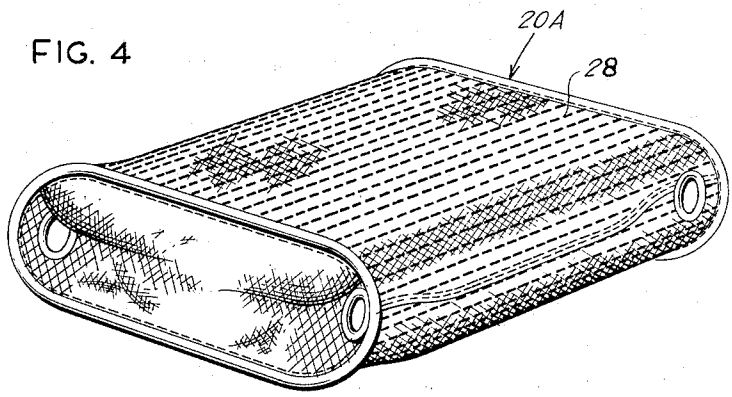


FIG. 5

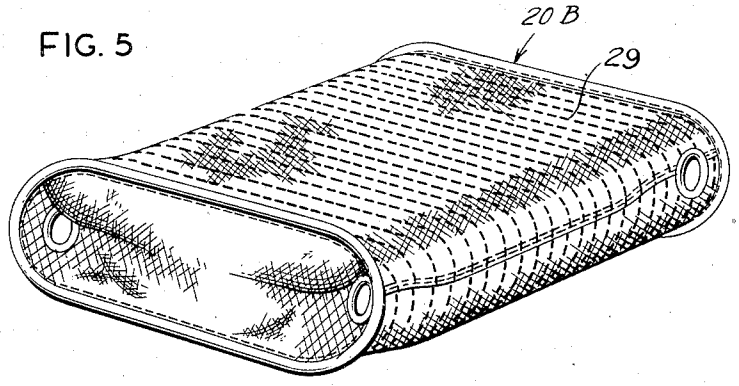
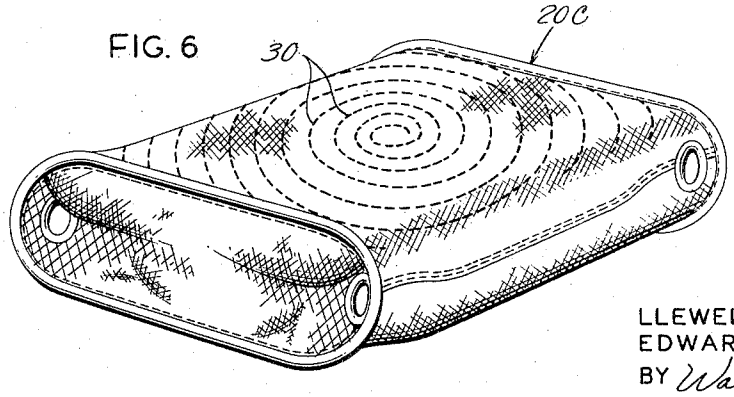


FIG. 6



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JOURNAL BEARING LUBRICATORS

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Application June 7, 1955, Serial No. 513,756

3 Claims. (Cl. 308—243)

This invention relates to a lubricator for the axle of a railway car, or the like.

The standard arrangement entailed in supporting the trucks of railway cars is to dispose the car axle in a journal box where a partial bearing engages the journal portion of the car axle.

The conventional method of lubricating the journal of the car in the past has been by waste packing rammed into the journal box, this packing being soaked with lubricant and so arranged that the journal rotates thereon. In the copending application of L. E. Hoyer, Serial No. 475,701, filed December 16, 1954, there is disclosed a lubricator in the form of an oil-resistant pad of sponge rubber or the like encased in a cover of non-glazing cotton wicking material or the like. The lubricator disclosed in the aforesaid application has been found highly satisfactory, and it is advantageous to assure in a positive way that the lubricator will be prevented from following motion of the car axle, which is to say that it is desirable that the pad lubricator be so constructed as to resist in a positive manner shifting within the journal box, and so to do is the primary object of the present invention.

Specifically, it is an object of the present invention to sew, stitch, or otherwise incorporate in the aforementioned cover of cotton wicking, threads, filaments, strands or the like of a material having a low coefficient of friction. In this way, the face of the wicking cover engaged by the car journal is modified to have low friction characteristics, such serving to reduce the friction between the car journal and the pad lubricator thereby preventing in a positive manner any substantial tendency for the pad to be shifted from one side or the other within the journal box.

Other and further objects of the present invention will be apparent from the following description and claims and are illustrated in the accompanying drawings which, by way of illustration, show preferred embodiments of the present invention and the principles thereof and what we now consider to be the best mode in which we have contemplated applying these principles. Other embodiments of the invention embodying the same or equivalent principles may be used and structural changes may be made as desired by those skilled in the art without departing from the present invention and the purview of the appended claims.

In the drawings:

Fig. 1 is a vertical section view through a journal box showing the car axle and the lubricator disposed therein;

Fig. 2 is a perspective view of one form of the present invention;

Fig. 3 is a partial section taken on the line 3—3 of Fig. 2; and

Figs. 4, 5 and 6 are, respectively, modifications of the invention.

The present invention is illustrated in Fig. 1 as operatively associated with a journal box JB of standard

construction in which the journal J of a car axle CA is disposed to be engaged by a partial bearing **10** of standard construction, the bearing **10** being wedged in place between the journal J and the top of the box JB by a wedge **11** of the usual kind.

Adjacent the outer end, the car axle is formed with an enlarged hub **13**, and opposite the hub **13** the car axle includes a dust guard seat or so-called seal fit **12** adapted to be sealably engaged by a conventional dust guard **15**. The dust guard **15**, in accordance with usual practice, is removably inserted in the dust guard slot DS of the journal box which is at the side of the journal box disposed adjacent the car wheel (not shown).

Disposed in the bottom of the journal box between the bottom of the journal box and the lower peripheral portion of the journal J, is a lubricator **20** adapted to absorb a relatively large quantity of fluid lubricant for lubricating the journal J and the face **10F** of the bearing **10**. Thus, the upper face of the lubricator **20** engages the journal, and in this way lubricant absorbed in the pad **20** is picked up by the journal which then wipes the lining **10F** of the bearing.

The pad lubricator **20** is generally of the kind disclosed in the aforesaid pending application, and thus includes a relatively large body **21**, Fig. 3, composed of oil resistant sponge or foam material, open or closed cell, such as neoprene or polyurethane synthetic rubber or the like. The body **21** of the lubricator is symmetrical both as to the dimensions of the upper and lower faces thereof and as to the dimensions of the end and side walls as described in the aforesaid copending application, such enabling the lubricator to be reversably, end for end or face for face, mounted in the journal box as aforesaid.

The lubricator **20** is wrapped or encased in a woven cover **25** of cotton wicking material, having upper and lower sides wrapped in sleeve form about the body **21**, and at the four corners the cover includes hook receiving elements in the form of brass grommets **26** facilitating withdrawal of the lubricator from beneath the journal as described in our aforesaid copending application.

To enable large quantities of lubricant to be relayed to the journal under certain circumstances to be mentioned, the opposed faces of the pad are formed with randomly distributed passages **27** of enlarged diameter. Ends **27E** of these passages terminate within the body **21** short of the medial plane of the body of the pad, so that in the central area or portion between the dead ends **27E** of the opposed passages **27** the pad body **21** is continuous as shown in Fig. 3 except, of course, to the extent that the pad is porous. Under those circumstances where the lubricator **20** is compressed by vertical motion of the journal J, jets of lubricant in effect will spray through the dead ends of those of the passages **27** having open ends at the bottom of the journal box, this being caused by pressure established in the passages **27** where lubricant will be trapped. If the body of the pad is of the closed cell rather than the open cell type, it is necessary to pierce or otherwise provide the dead ends **27E** of the passages **27** with a capillary opening extended through the pad to the face that engages the journal so that lubricant will be emitted therefrom as a jet spray as aforesaid.

Under the present invention, we have found that by incorporating in the cover **25** threads, filaments, strands or the like of a material having a low coefficient of friction, the tendency for the pad to shift from one side of the pad to the other within the box due to motion of the journal is greatly lessened. The term "threads" is used generically herein to include threads, strands, filaments and the like, and the threads found satisfactory

include nylon, Dacron, Orlon, ramie, linen and like materials having a low coefficient of friction.

The particular pattern to be provided in the cover **25** is not important, but what is important is that the threads used have a low coefficient of friction as aforesaid, that is, lower than the cotton material or other wicking material of which the cover **25** is composed. This reduces the friction between the lubricator and the car journal and thereby lessens the tendency for the lubricator to follow or be picked up by the journal.

Thus, in Fig. 2, the low friction threads take the form of a grid or net-work afforded by low friction threads **28** parallel to the axis of the car axle and transverse low friction threads **29** arranged at right angles to the car axle. In Fig. 4 it will be observed that the lubricator **20A** includes only the threads **28**, and in Fig. 5 the lubricator **20B** includes only the threads **29**, demonstrating that the pattern of low friction threads is not critical.

While symmetry is preferred, that is, both outer faces of the upper and lower sides of the lubricator cover are preferably provided with low friction threads so that the lubricator is reversible, it will be recognized that it is the outer face of the lubricator cover which engages the journal which is of necessity to be modified for low friction. Thus, the lubricator **20C**, Fig. 6, is spirally stitched with low friction threads **30** only in the upper face which is the one to engage the journal.

It will be seen from the foregoing that the pattern of the low friction threads is not critical. Moreover the threads as **26**, **27** and **30** may be incorporated in the lubricator cover in any desired way, as by stitching or weaving. This disposes the low friction threads tightly in the cover, that is, in a non-nap fashion. In other words, the low friction threads are taut throughout so as to be drawn throughout the length thereof into engagement with the cover threads, whereby the low friction threads are engaged throughout the length thereof with the plane defined by the cotton or other high friction threads composing the wicking cover. In like manner, the spacing between the threads is not critical, and we have found that a spacing of four to six threads per inch is satisfactory. Inasmuch as the low friction materials listed above are well known, it is not deemed necessary to set forth the precise chemical nature of these, especially since such materials are merely exemplary of what have been found suitable.

While the invention has been described with respect to the axle of a railway car, it will be appreciated that this is exemplary of journals or axles in general.

Hence, while we have illustrated and described the preferred embodiments of our invention, it is to be understood that these are capable of variation and modification, and we therefore do not wish to be limited to the precise details set forth, but desire to avail ourselves of such changes and alterations as fall within the purview of the following claims.

We claim:

1. In a composition lubricator adapted to engage a rotatable journal, a lubricator pad including a body of porous material for absorbing lubricant and having upper and lower faces, at least the upper face of the pad which is to engage the journal having a wicking cover composed of material of predetermined high friction for relaying lubricant to the journal, the outer face of said cover having threads of low friction material provided therein in regular spaced intervals and in a taut non-nap fashion uniformly across the area thereof to engage the journal and thereby lessen the tendency of the pad to follow the journal, said cover being exposed between said low friction threads and whereby said low friction threads are substantially coplanar throughout the length thereof with the face of said cover.

2. A lubricator according to claim 1 in which the cover is composed of cotton wicking material and includes two sides extended in sleeve form after both faces of said body and in which said threads are provided in the outer face of both sides of said cover and are selected from the group of low friction materials including nylon, Dacron, Orlon, ramie and linen.

3. In a composition lubricator adapted to engage a rotatable journal, a rectangular lubricator pad reversible face-for-face and including a body of porous oil-resistant material for absorbing lubricant, a cover of woven cotton wicking material disposed about the opposed faces, ends and sides of said porous body, hook-receiving elements provided at corners of said cover, said porous body having enlarged passages formed in the opposed faces therein and said passages having dead ends within said porous body adapted to cause lubricant trapped therein and subjected to pressure to emit as a spray through porous areas of said body that are in alignment with said enlarged passages, said cover having woven directly in the opposed faces therein threads of material having less friction than the cotton threads of said cover so as to reduce the tendency of said lubricator pad to follow motion of the journal, said threads of less friction than the cotton threads of said cover being taut throughout the length thereof and said threads being engaged throughout the length thereof with the planes of the opposed faces of said cover.

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