Jan. 21, 1930. M. A. KRETCHMAR 1,744,390

LUBRICATION

Filed Nov. 14, 1927

Fig. 1.

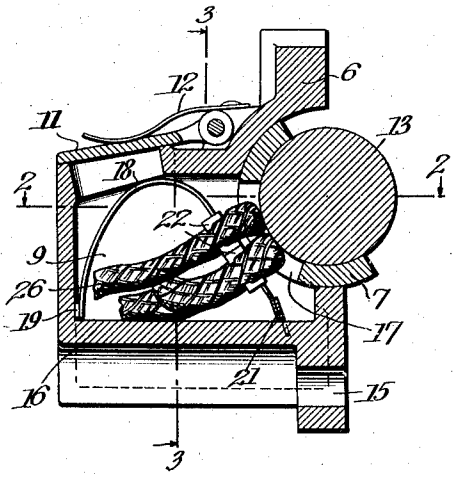


Fig. 2.

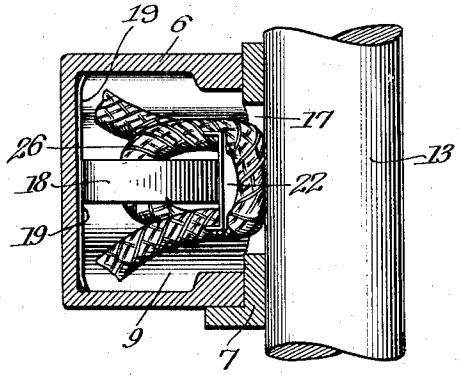
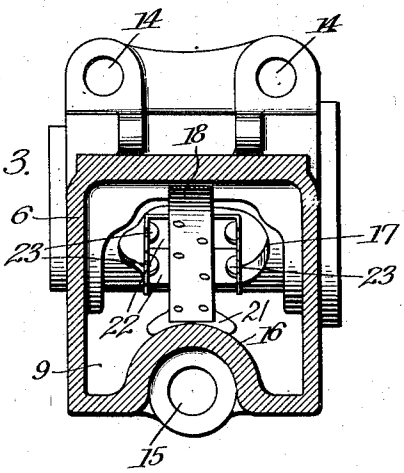


Fig. 3.



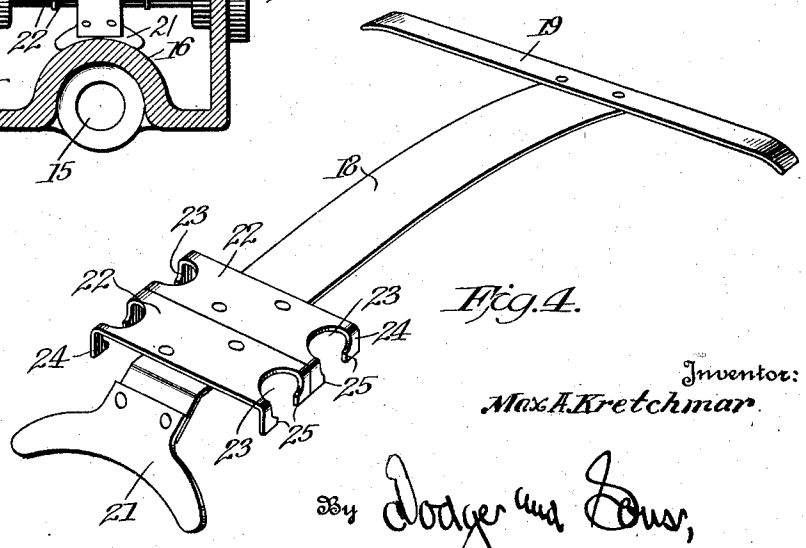


Fig. 4.

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Patented Jan. 21, 1930

1,744,390

UNITED STATES PATENT OFFICE

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LUBRICATION

Application filed November 14, 1927. Serial No. 233,223.

This invention relates to lubrication, and particularly to lubrication of journals by the use of a capillary wick which is held in contact with the journal.

In order to cause such wick to function properly it is necessary that the wicking be forced against the journal with appropriate pressure and that the support be so arranged that it will follow up and compensate for wear of the wick.

The present invention provides a supporting device for such a wick applicable to existing journal boxes having oil cellars and so designed as to sustain itself in position and to exert upon the wick the necessary pressure throughout the useful life of the wick.

The invention is applicable, with slight modification, to somewhat different types of bearing box but will be illustrated as applied to the bearing box commonly used for the motor shaft of electric street cars. Such an application of the invention is illustrated in the accompanying drawings, in which,—

Fig. 1 is a vertical section of a portion of the box with the oil cellar and one of the two bearing brasses showing the lubricating wick and its supporting means in position.

Fig. 2 is a section on the line 2—2 of Fig. 1.

Fig. 3 is a section on the line 3—3 of Fig. 1 viewed in the direction of the arrows. In this view the wick is omitted to avoid obscuring the drawing.

Fig. 4 is a perspective view showing the supporting means in its normal and unflexed position.

In the drawing 6 represents the removable portion of a bearing box which is of the separable type. This box carries a bearing bushing or brass formed in two parts, one of which is shown at 7. The box 6 contains an oil cellar 9 to which access is had by opening a lid 11 normally held closed by a spring 12. The cellar 9 is adapted to contain oil at a level below the lower side of the journal 13. The removable portion 6 of the bearing box is held in operative position by bolts which pass through the holes 14 at the upper side and a bolt which passes through the hole 15 at the lower side. To afford clearance for the removal of the bolt which passes through the hole 15 the bottom of the oil cellar 9 is arched or internally ribbed, as indicated at 16.

Boxes of the type just described were known prior to my invention. In such boxes as heretofore used, the cellar contained oil and the box was packed with waste which served to carry the oil to the journal by capillary feeding. This type of lubrication has not proven entirely satisfactory. Satisfactory lubrication and greatly increased mileage have been secured with other types of box by the use, in lieu of waste, of a combined metal and cotton wick constructed in accordance with the patent to Simmons, 1,122,037, issued December 22, 1914.

In order to use such a wick successfully I provide the supporting means for the wick which forms the subject matter of the present application. This supporting means consists of a strip 18 of resilient steel, which carries riveted to it at one end, a cross bar 19, of any suitable material, conveniently brass. This member 19 acts against the inner wall of the cellar 9 opposite to the journal 13, and is of such length that it extends approximately from end to end of the cellar and thus serves to center the strip 18. The opposite end of the strip 18 is provided with a bowed or forked extension 21 which straddles the arch or rib 16 in the bottom of the cellar.

Between the ends of the strip 18 and adjacent the forked member 21 the strip 18 is provided with a wick-supporting table, here shown as formed of two abutting sections 22. The purpose in forming the table in sections is to maintain the flexibility of the strip 18 at the point of attachment of the table. Other expedients for this purpose may obviously be used. The wick-supporting table is dimensioned as a whole to pass freely through the opening 17 in the brass 7 so that under the resilient pressure exerted by the strip 18 when bowed upwardly in the cellar 9, as shown clearly in Fig. 1, the table may follow up the wick regardless of wear throughout the useful life of the wick.

In order to retain the wick in place each end of each of the members 22 is formed with a notch 23 slightly smaller than the normal transverse dimension of the wick, and defined

at their ends by downwardly turned prongs 24 which have projections 25 extending toward each other, serving to constrict the entrance to the notch 23. The wick 26, which is preferably of the type described in the Simmons patent before identified, is applied to the table by winding it around the same and crowding the wick into the notches 23.

If it is desired to feed a large quantity of oil the wick, after it is drown tightly across the top of one member 22 and engaged with the notches in both ends thereof, is looped loosely and drawn across the other member 22 and pressed into the notches thereof. The effect is to produce a loose bight of the wick which together with the two end portions of the wick, offers four oil feeding paths from the cellar to that portion of the wick which contacts the journal.

If a less quantity of oil is to be fed, the intervening bight or loop may be taken up, in which case the wicking is in effect wrapped one and one-half turns around the members 22. In this case the bight lies so closely beneath the table that it does not enter the oil in the cellar and consequently there are only two feeding paths for oil from the cellar to the portion of the wick which contacts the journal, i. e., the paths offered by the two end portions of the wick. Whichever way the wick is applied the operative principle is the same, and the different ways of applying the wick are described only to indicate the possibility of varying the feeding rate.

The backwardly turned prongs or projections 23 not only retain the wick in place but they also serve to guide the wick supporting table relatively to the opening in the brass and to limit the wear on the wick where the latter is drawn into the notches. Obviously the form of the wick retaining prongs may be modified somewhat without sacrificing the advantages above described.

What is claimed is:—

1. The combination of a journal box having a bearing element and an oil cellar; a journal turning therein having a portion exposed within said box; a resilient member mounted in bowed form within said cellar with its ends in thrust engagement with the walls thereof; a wick retaining structure mounted on said member between the ends thereof; and a wick retained by said structure and held by the resilience of said resilient member in thrust engagement with the exposed portion of said journal.

2. The combination of a journal box having a bearing element and an oil cellar the latter formed with an inward-extending rib; a journal turning in said bearing having a portion exposed within said box; a wicking in said cellar arranged to contact with the exposed portion of said journal; and a support for said wicking comprising a resilient bowed strip having at one end a thrust member which engages one side of the cellar and at the other end a retaining member which straddles said rib, and a wick supporting thrust plate mounted on said strip between its ends and having wick retaining projections.

3. The combination of a journal box having a bearing element and an oil cellar, the latter formed with an inward-extending rib; a journal turning in said bearing having a portion exposed within said box; a wicking in said cellar arranged to contact with the exposed portion of said journal; and a support for said wicking comprising a resilient bowed strip having at one end a thrust member which engages one side of the cellar and at the other end a retaining member which straddles said rib, and a wick-supporting table mounted on said strip between its ends, said table having wick-receiving notches and wick-retaining prongs projecting approximately at right angles to the wick-supporting face of said table.

4. A resilient wick support for use in journal boxes, comprising in combination a resilient strip having at one end laterally projecting extensions to center the strip in a box and at the other end a forked member to straddle a rib in said box; and a wick-supporting table mounted on said strips adjacent the last named end, and having wick-receiving notches with wick-receiving prongs extending substantially perpendicular to said table and serving to constrict the entrance to said notches.

In testimony whereof I have signed my name to this specification.

MAX KRETCHMAR.