Dec. 19, 1961 E. C. GITS 3,013,847

LUBRICATING DEVICE

Filed Feb. 18, 1960

Fig. 1

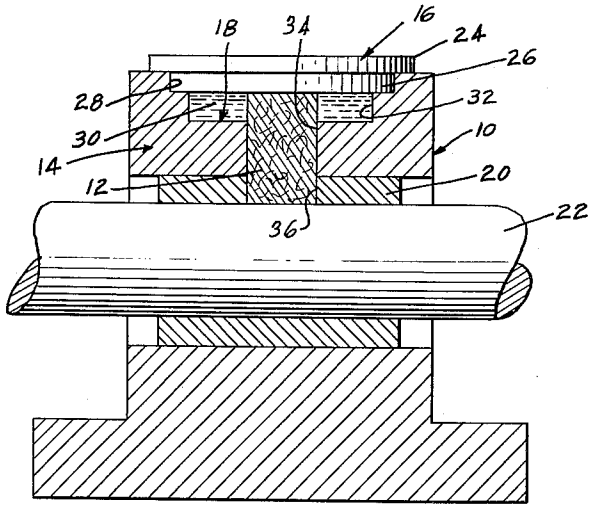
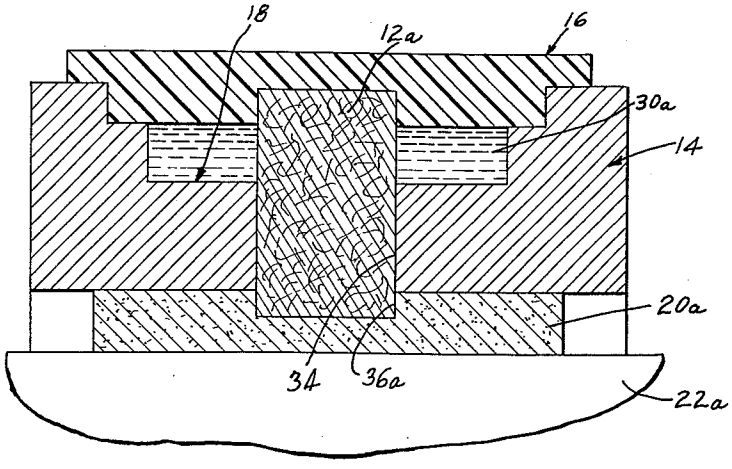


Fig. 2



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LUBRICATING DEVICE

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This invention relates to a lubricating device, and more particularly to a device having an oil saturated wick for lubricating a bearing.

Heretofore, a variety of methods of lubricating bearing surfaces have been attempted including the feeding of a supply of oil to the surfaces by conduit means, and the like. Consequently, these methods have either required frequent attention or have been undesirably expensive and complicated.

The present invention provides for lubricating bearing surfaces by wick means in a bearing element feeding oil to the surfaces by absorption or capillary action. The oil is desirably supplied to the wick means from a pocket in the bearing means which is closed by a cap and retainer structure which may be press fitted or screwed into position, and though the lubrication thus afforded will be permanent, the wick can be resaturated at intervals by replenishing the oil if desired. Preferably, the cap and retainer structure also serves to secure the wick means in position. In one form of the invention, the bearing element may be of porous metal to distribute the oil to the bearing surfaces, while in another form of the invention the wick may extend to the bearing surfaces themselves.

Accordingly it is an object of the present invention to provide a lubricating device which is effective to permanently lubricate bearing surfaces without the need for lubricating conduits or the like.

Another object of the invention is to provide a lubricating wick of absorbent characteristic which can be disposed adjacent to or in contact with a bearing in substantially any plane or relationship to afford a desired lubricating action.

Other objects and advantages of the invention will become apparent as the description proceeds in accordance with the drawings in which:

FIGURE 1 is a vertical sectional view of a lubricating device according to the present invention; and

FIGURE 2 is a vertical sectional view of another embodiment of the invention.

As shown on the drawings

Referring now to FIGURE 1 of the drawings, a lubricating device **10** is shown which includes a wick **12** of felt or other suitably absorbent material, secured in a pillow block or housing **14** by means of a cap **16** which engages the wick and removably seals on an opening **18** in which the wick is received, as hereinafter further described. The housing **14** retains a bearing member **20** in which is journalled a shaft **22**, and the wick extends radially through the bearing member into lubricating contact with the shaft **22**.

The cap **16** may be press fitted into the housing **14**, or threadedly secured therein, as desired, and in the form shown, has a relatively wide, flanged portion **24** seating against the outer surface of the housing, and a reduced portion **26** releasably engaged within an outer recess **28** of the opening or cavity **18**. The cap is preferably formed of a suitable oil-resistant plastic material, and may have at least the reduced portion **26** thereof constructed of an elastomer snugly receiving the upper end of the wick **12**.

An oil reservoir **30** is afforded by the reduced, inner portion **32** of the cavity **18**, and it will be seen that the radial bore **34** receiving the wick **12** is continuous with the portion **32** for receiving the oil.

The bore **36** in the bearing **20** is aligned in radial registration with the bore **34**, as shown, and both of these bores are preferably dimensioned to snugly receive the wick **12**. However, because of the engagement of the wick in the cap **16**, the cap and the wick may be inserted and removed as a single unit. The cap effectively seals the oil in the reservoir **30**, and it will be appreciated that the oil may be placed in the reservoir after the wick has been partially inserted, or otherwise, and may be replenished if desired.

However, there will generally be no necessity for replenishing the oil, and the wick may be maintained in assembled relation with the bearing indefinitely to provide a substantially life-long lubricating means for the bearing. An oil-saturated wick may also be used as described without an oil reservoir, and may be removed at periodic intervals for resaturation.

Where the oil reservoir **30** is utilized, oil will be fed along the wick to the bearing surfaces from the areas of the wick in contact with the reservoir, and will thus be automatically metered in accordance with lubricating requirements.

Referring now to FIGURE 2, a second embodiment of the invention is shown wherein similar parts are designated by similar reference numerals, and wherein the operation and construction of the device is substantially as described with respect to the embodiment of FIGURE 1. However, the bearing **20***a* is formed of a porous metal, and receives oil from the wick **12***a* and the reservoir **30***a* to distribute it along the surfaces of the shafts **22***a* in contact with the bearing. The bearing absorbs the oil from the wick so that it becomes suitably impregnated therewith, although it may also be saturated initially if desired. The extent of penetration of the wick into the bearing may be varied by varying the dimension of the closed bore **36***a* as desired, but in any case will be sufficient to effect the transfer of the oil to the bearing and the shaft.

There has thus been provided an oil-wick lubricating means for bearings which is simple and economical in construction and affords a substantially life-long lubricating action. The wick of the invention may extend through both the housing and bearing, as in the embodiment of FIGURE 1, so that oil is distributed axially therefrom along a shaft or other surface, or may extend through the housing and into a porous bearing without contacting the bearing surfaces directly, as in the embodiment of FIGURE 2, so that distribution of oil is made to the bearing and thence to the bearing surfaces. In either case, oil is supplied only as required and to the extent required, by virtue of the absorbent action of the wick, so that any need for complex conduit and metering arrangements is obviated and the device may be utilized in a wide variety of applications.

Although I have herein set forth and described my invention with respect to certain principles and details thereof, it will be understood by those skilled in the art that these can be varied without departing from the spirit and scope of the invention as set forth in the hereunto appended claims.

I claim as my invention:

1. A lubricating structure comprising a housing, a porous metal bearing in said housing having a bore therethrough for receiving a shaft and a radially aligned bore extending thereinto in spaced relation to said bore for receiving said shaft, an opening extending through said housing and having a reduced portion in register with said radial bore in said bearing, a relatively wide oil reservoir portion and an outer cap receiving portion, a cap releaseably seated in said cap receiving portion, a supply of oil in said oil reservoir portion and a radially extending wick having one end grippingly secured in said cap, said wick extending through said supply of oil, through said re-

duced portion of said opening in said housing and into snug engagement with said radial bore in said bearing whereby to distribute oil from said supply of oil into and through said bearing to effect an even distribution to the bearing surface forming said bore in said bearing for receiving said shaft.

2. A lubricating structure comprising a housing, a bearing in said housing of generally cylindrical configuration, said bearing defining a bore for receiving a shaft therethrough concentrically therein, and a radial bore therein, said housing having an opening including a radial portion registering with said radial bore in said bearing, a relatively large oil reservoir portion and an outer cap receiving portion, a cap removably seating in said cap receiving portion of said opening in said housing, a supply of oil in said reservoir portion of said opening in said housing and a wick having an end grippingly secured in said cap and passing through said supply of oil, through said radial portion of said opening in said housing in register with the radial bore in said bearing and into said radial bore in said bearing to transmit a uniform supply of oil from said oil supply in said reservoir portion of said opening in said housing to a shaft which may be received in said concentric bore in said bearing.

3. A lubricating structure comprising a housing, a bearing in said housing of generally cylindrical configuration, said bearing defining a bore for receiving a shaft therethrough concentrically therein, and a radial bore therethrough opening into said concentric bore, said housing having an opening including a radial portion registering with said radial bore in said bearing, a relatively large oil reservoir portion and an outer cap receiving portion, a cap removably seating in said cap receiving portion of said opening in said housing, a supply of oil in said reservoir portion of said opening in said housing and a wick having an end grippingly secured in said cap and passing through said supply of oil, through said radial portion of said opening in said housing in register with the radial bore in said bearing and through said radial bore in said bearing into substantially flush relationship with the concentric bore in said bearing thereby to transmit a uniform supply of oil from said oil supply in said reservoir portion of said opening in said housing to a shaft which may be received in said concentric bore in said bearing.

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