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D. F. FESLER

LUBRICANT COMPRESSOR

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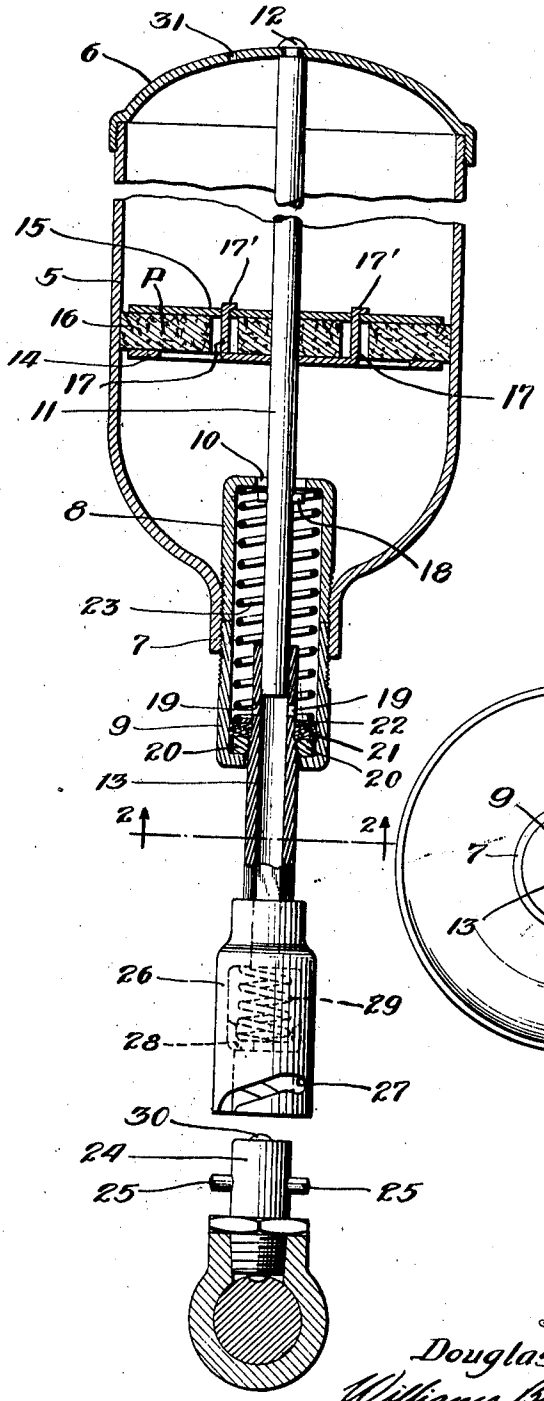


Fig. 1.

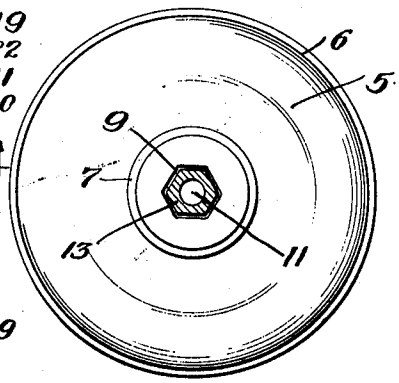


Fig. 2.

Inventor
Douglas F. Fesler
Williams Bradbury
McCabe & Pierce Atty's.

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DOUGLAS F. FESLER, OF CHICAGO, ILLINOIS, ASSIGNOR TO THE BASSICK MANUFACTURING COMPANY, OF CHICAGO, ILLINOIS, A CORPORATION OF DELAWARE.

LUBRICANT COMPRESSOR.

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My invention relates to improvements in lubricant compressors and is particularly concerned with the provision of a novel compressor adapted to form a part of a lubricating system comprising a plurality of fittings which are secured to the bearings to be lubricated and a compressor for successively making sealed contact with such fittings so as to supply lubricant under pressure thereto.

The objects of my invention are:

First: to provide a compressor of the character described in which the pressure on the lubricant is developed by exerting a pressure against the fitting to be lubricated.

Second: to provide a compressor of the character described comprising a barrel and high pressure cylinder and plunger for operating in said high pressure cylinder a means for making sealed connection with the fitting, the elements being so arranged that when pressure is exerted upon the compressor in the direction of the fitting, a lubricant will be forced there into under pressure.

Third: to provide a compressor such as described which is particularly adapted to be used in connection with fittings comprising a cross pin or projection extending from the sides of the fitting for co-acting with means on the compressor to lock the compressor to the fitting.

Fourth: to provide a compressor of the character described, in which a floating piston is used for assuring a supply of lubricant to the cylinder; and

Fifth: to provide a compressor such as described which is simple of construction, economical to manufacture and easy to operate.

Other objects of my invention will appear as this description progresses, reference being had to the accompanying drawings, in which

Figure 1 is a side elevation partially in central longitudinal section disclosing the details of construction of my improved compressor, one of the fittings with which said compressor is adapted to co-operate being shown in side elevation in connection therewith; and

Figure 2 is a transverse section taken on line 2—2 of Figure 1.

Referring to the drawings, my improved compressor comprises a barrel 5, having a removable cap 6, at one end and the internally threaded nipple 7 at the opposite end. A pair of cupshaped bushings 9 have their open ends threaded into the nipple 7. The bottoms of these bushings are provided with apertures 10 and 10′ respectively. The latter opening is hexagonal in shape as shown in Figure 2.

A plunger 11 has its outer end secured to the cap 6 as shown at 12 and its inner end projects through the opening 10 in the bottom of the bushing 8, and into the inner end of the cylinder 13. A piston is slidably mounted in the barrel 5. This piston comprises the face plate 14, the follower plate 15 and a felt disk 16 which is confined between the two plates 14 and 15 to hold the plates and the disk in assembled relation. Tongues 17 may be struck from the plate 14, bent at angles thereto and passed through suitable openings in the follower plate 15. The outer ends of these tongues could be bent over or riveted at 17′ so as to hold the felt disk 16 under slight pressure. The disk and the two plates are provided with registering openings for receiving the plunger 11 so that the piston P is free to reciprocate in the barrel 5. The plunger 11 may be provided with a cross pin 18 which can be withdrawn through the opening 10 and which acts as a stop so that when the cap 6 and the piston 11 are withdrawn from the barrel 5 for the purpose of filling the latter, the piston P will likewise be withdrawn from the barrel.

The cylinder 13 is hexagonal in cross section as shown in Figure 2 and slides freely in the opening 10′ but is of such size that it cannot rotate relatively to the bushing 9. Adjacent its inner end, the cylinder 13 is provided with laterally extending openings 19 which provide communication between the cylinder and the interior of the bushings 8, and 9. The opening which is in the bushing 8 in turn establishes communication between the bushings and the barrel 5 so that when the elements are in the relative positions shown in Figure 1, lubricant may flow into the cylinder 13. A collar 20 is threaded on to the cylinder 13 intermediate the ends of the latter to provide a stop for co-acting with the bottom of the bushing 9 and thus limit the outward

movement of the cylinder 13. For preventing the escape of lubricant between the cylinder 13 and the bushing, I prefer to provide the felt gasket 21 which is confined between the collar 20 and the washer 22. This washer is constantly held in contact with the gasket 21 by means of the compression spring 23, one end of which abuts against the washer 22 and the opposite end of which abuts against the bottom of the bushing 8.

For making a sealed contact with a fitting such as that shown at 24, which is provided with a pin, the opposite ends of which project from the sides of the fitting as shown at 25, I secure to the outer end of the cylinder 13 a suitable coupling sleeve 26 having inclined bayonet slots at the outer end for receiving the ends 25 of the pin of the fitting. For sealing the connection between the coupling sleeve 26 and the fitting 25, I prefer to make use of a cup-leather 28 which is held in its outermost position by means of a compression spring 29. The details of construction of this sealing means are well known to those skilled in this art and further description thereof is for that reason unnecessary.

When it is desired to lubricate a bearing which is provided with one of the fittings 24, the compressor is positioned relatively to this fitting as shown in Figure 1 and then moved downwardly so that the coupling sleeve 26 will receive the outer end of the fitting 24. The operator then turns the barrel 5 and this movement is communicated to the coupling sleeve 26 by reason of the complementary shapes of the opening 9 and the exterior of the cylinder 13. In this manner the bayonet slots 27 are caused to receive the ends 25 of the pin, forming a part of the fitting, and to draw the coupling sleeve 26 down over the fitting. During this action, the end of the fitting contacts with the gasket 28 and moves it inwardly against the tension of the spring 29. In this manner, initial seals are established between the compressor and the fitting. Thereupon the operator presses down the cap 6 toward the fitting 24, thereby moving the barrel of the compressor and the attached portions toward the fitting. This causes the plunger 11 to move into the cylinder 13 and displace the contents from the cylinder past the check valve 30 in the fitting and into the bearing. When the pressure on the cap 6 is released, the spring 23 returns the parts to the position shown in Figure 1 and as the plunger 11 is withdrawn from the cylinder 13 a vacuum is produced therein which, when the openings 19 are uncovered, is communicated to the contents of the barrel 5 and thereby draws lubricant into the cylinder 13 so that upon the next movement of the barrel towards the fitting this new charge of lubricant will be forced into the fitting. If desired, an opening 31 may be formed in the cap 6 to avoid any reduction of pressure in the outer end of the barrel 5.

From the above description, it will be apparent that I have provided a lubricant compressor which is simple of construction, economical to manufacture and easy to operate.

While I have described the details of construction of the preferred embodiment of my invention, it is to be clearly understood that my invention is not limited to the details but is capable of other adaptations and modifications within the scope of the appended claims.

Having thus described my invention, what I claim is:

1. A compressor comprising a barrel, one end of which terminates in an interiorly threaded nipple, a pair of cup-shaped bushings having their open ends threaded into said nipple in opposed relation, there being aligned apertures in the bottom of said bushings, a plunger supported in said barrel and extending through the opening in the inner one of said bushings, a piston slidable on said plunger, a cylinder for receiving the outer end of said plunger, said cylinder being in communication with said barrel and extending through the opening in the outer bushing, the opening in the bottom of the outer bushing and the exterior of said plunger being polygonal, means carried by the outer end of said cylinder for making sealed connection with a fitting, a gasket carried by the inner end of said cylinder, and a spring confined between said gasket and one of said bushings for urging said cylinder outwardly.

2. A compressor comprising a barrel terminating at one end in a nipple, a pair of cup-shaped bushings supported by said nipple in opposed relation, a plunger carried by said barrel and extending through the bottom of the inner one of said bushings, a cylinder in communication with said barrel and comprising means for slidably receiving the free end of said plunger, said cylinder being slidable in the outer one of said bushings, means within the outer end of said cylinder for making sealed connection with a fitting, and means carried by said cylinder for preventing escape of lubricant between said cylinder and said bushing.

3. A compressor comprising a barrel and a plunger supported in said barrel, a pair of tubular bushings carried by one end of said barrel, one end of said plunger projecting into one of said bushings, a cylinder extending through the outer bushing for receiving the free end of said plunger and means for preventing escape of lubricant between said cylinder and said outer bushing.

4. A lubricant compressor comprising a

plunger and a cylinder for receiving one end of said plunger, said cylinder and plunger being reciprocable relatively to each other, a barrel for supplying lubricant to said cylinder and means for effecting a sealed relation between said cylinder and said barrel comprising a tubular member, a gasket in said tubular member, and a spring for urging said cylinder to its charging position and for exerting pressure against one side of said gasket.

5. A lubricant compressor comprising a barrel and cylinder for receiving lubricant from said barrel, said barrel and cylinder being reciprocable relatively to each other, a coupling member carried by the outer end of said cylinder, said coupling member being provided with means for making a mechanical connection with a fitting upon the rotation of said barrel, and means for causing said coupling member to rotate with said barrel when said barrel is rotated.

In witness whereof, I hereunto subscribe my name this 15th day of February, 1924.

DOUGLAS F. FESLER.