

1,025,510.

Fig. 1.

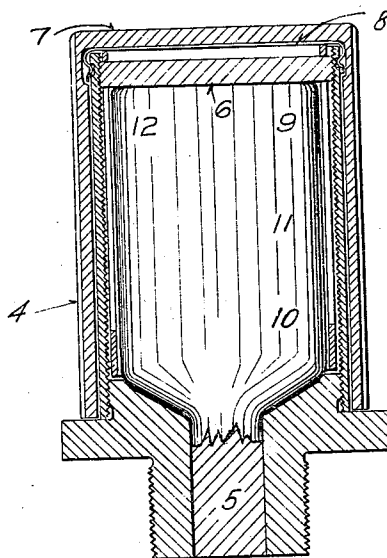


Fig 2.

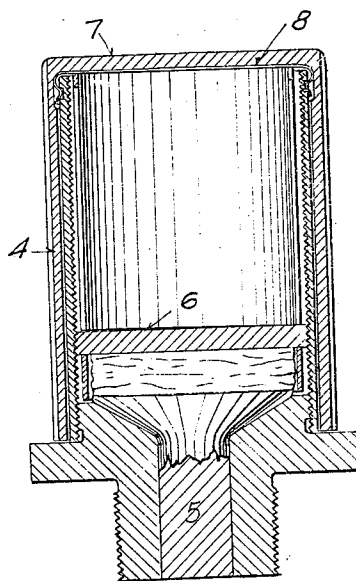


Fig. 3.

WITNESSES

WITNESSES
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UNITED STATES PATENT OFFICE.

JAMES F. CRAVEN, OF PITTSBURGH, PENNSYLVANIA, ASSIGNOR TO CRAVEN ENGINEERING COMPANY, OF PITTSBURGH, PENNSYLVANIA, A CORPORATION OF PENNSYLVANIA.

METHOD OF LUBRICATING BEARINGS.

1,025,510.

Specification of Letters Patent.

Patented May 7, 1912.

Application filed February 5, 1910. Serial No. 542,290.

To all whom it may concern:

Be it known that I, JAMES F. CRAVEN, a resident of Pittsburgh, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Methods of Lubricating Bearings, of which the following is a specification.

This invention relates to a method of supplying lubricants to machine bearings.

The object of the invention is to provide the necessary supply of lubricant in a manner which absolutely prevents any dirt, dust or grit entering the bearings with the lubricant, or, in other words, preventing the lubricant itself, in any stage of its transportation, handling, or storage, or in supplying the same to the bearing, from coming in contact with dirt or grit.

The invention comprises the process steps for supplying the lubricant hereinafter described and claimed.

In the accompanying drawing, Figure 1 is a sectional view showing one manner of putting the lubricant up; Fig. 2 is a sectional view through a suitable grease cup for receiving the package of lubricant; and Fig. 3 is a similar view showing the manner in which the lubricant is forced out of the package or container.

The invention is intended, primarily, for supplying thick lubricants in the form of grease, although it is to some extent applicable to supplying thinner lubricants, such as oils. Greases are usually supplied to bearings by means of grease cups. Greases are usually put up in cans or other large receptacles, or, in the case of fairly, solid greases, they are put up in the form of small cylinders or candles. The latter accumulate more or less dirt, so that when placed in the grease cup, this dirt is fed into the bearing. When put up in cans or other large receptacles, the grease must be put into the cup in some crude manner, which generally results in more or less dirt or dust entering with the grease. The consequence is that the bearings are unnecessarily worn on account of the dirt and dust entering with the grease.

According to my invention, the grease or other lubricant indicated at 1 is put up at the factory in small packages suitable for entering the grease cup without breaking the same, by being inclosed in a suitable container 2, which, in the form shown in Figs. 1 to 3, may be of any substance ca-

pable of being collapsed and ruptured. With most greases, a suitable container can be formed from paper or other suitable material or from thin lead foil or the like, such as is usually used for tubes to contain artists' paints and various other substances. This container may be provided in its bottom with a small opening, or it is merely weakened in its bottom, as indicated at 3, by making that portion of the container thinner than the other portions. The container as a whole, is capable of being collapsed and squeezed down to force out of the same the grease contained therein. These containers are sealed at the factory, so that it is impossible for the grease to collect or accumulate dust or dirt. The containers will be made of such size as to fit into standard sizes of grease cups.

In use, the containers are inserted into a suitable grease cup, such as indicated at 4, which is provided in its bottom with an opening 5 for supplying the lubricant to the bearing. In the cup is a suitable plunger 6, by means of which pressure can be exerted on the container in order to compress and collapse the same to cause the lubricant to rupture the bottom at the weakened part 3 and form an opening through which the grease escapes and flows to the bearing. The plunger 6 may be actuated by any suitable means, the drawings showing said plunger externally threaded and engaging internal threads in the cup or casing, so that by rotating the plunger 6 it is caused to travel downwardly to exert the necessary pressure to rupture the container and force the grease into the bearing.

Various means for rotating the plunger may be employed, the drawings showing a cap 7 rotatably mounted on the casing and held against accidental lifting by means of spring 8 engaging the annular groove 9 in the outer face of the casing near its top. Projecting downwardly from the cap is a tube 10 which is provided with vertical slots 11 through which extend radial projections 12 on the plunger or piston, said projections being externally threaded to engage the threads on the interior of the casing.

The particular grease cup illustrated is one which is illustrated, described and claimed in an application of even date herewith, Serial No. 542,289, and is only one of various forms of grease cups which may be

used in connection with the grease put up in containers, and adapted to carry into effect my method.

The container for grease may be, if desired, formed of paper or other collapsible material which is capable of being ruptured or broken when pressure is exerted thereon, or if desired, the opening may be formed by the removal of a cap, before inserting into the cup. The thin metal foil, however, is preferred, as it presents a smooth outer surface, which does not accumulate dirt and which, in any event, can be easily wiped off before inserting into the cup.

My method of putting up and supplying the lubricant absolutely prevents any dirt, dust or grit getting into the bearings with the lubricant. It also prevents waste of lubricant, which occurs when grease is taken from a large can or receptacle to be supplied to the cup. The latter method also smears up the cup and bearing, either rendering them unsightly or making it necessary to clean the same, and also making it impossible to handle the cup without soiling the hands.

According to my invention, the grease is closed in a sealed container, and therefore can be handled without soiling the hands and without getting grease smeared over the cup and other parts. In squeezing the grease out of the container, the latter is collapsed, and when used in a grease cup as shown, the container expands in the tube 10, so that when the latter is withdrawn to allow a new container to be put in the cup, the old crushed container comes out with the tube. The new container is preferably inserted in the tube 10, and the latter with the container is then put into the cup. This, however, is not necessary, as the container can be placed in the cup itself, and the tube 10 and cap then inserted.

What I claim is:—

1. The method of supplying a lubricant to bearings consisting in inclosing the lubricant in a closed container having a weak portion, inserting said container in a chamber provided with a passage leading to the bearing, applying pressure to said container and thereby rupturing the weak portion, and then forcing the lubricant out of the container and into the bearing.

2. The method of supplying a lubricant to bearings consisting in inclosing the lubricant in a closed container having a weak portion, and a smooth exterior surface throughout, inserting said container in a chamber provided with a passage leading to

the bearing with the weak portion of the container alined with the passage, applying pressure to said container and thereby rupturing the weak portion, and then forcing the lubricant out of the container and into the bearing.

3. The method of supplying a lubricant to bearings consisting in inclosing the lubricant in a closed, collapsible container having a weak portion, connecting said container to the bearing to feed directly thereinto, and then applying pressure to said container and thereby rupturing the same and forcing the lubricant out of the same and into the bearing.

4. The method of applying a lubricant to bearings consisting in inclosing the lubricant in a closed, collapsible container or wrapper having an exterior surface free of projections or crevices, inserting the same in a cup or chamber having a lubricating passage leading therefrom to the bearing, then applying pressure on said container to form an opening from the container into the passage and to collapse the container and force the lubricant out of the same into the bearing.

5. The method of supplying a lubricant to bearings, consisting in inclosing the lubricant in a sealed container or wrapper having a surface so smooth as to prevent the lodgment of foreign matter thereon, said container being formed of material capable of being collapsed and ruptured when pressure is applied thereon, inserting the said container in a cup or chamber having a lubricating passage leading therefrom to the bearing, and then applying pressure on said container to open it at the passage and thereby rupturing the same and forcing the lubricant out of the same and into the bearing.

6. The method of supplying a lubricant to bearings, consisting in inclosing the lubricant in a non-porous collapsible container provided with a weak portion, inserting said container in a chamber provided with a passage leading to the bearing, and then applying pressure on said container and thereby rupturing the weak portion, collapsing the same, and forcing the lubricant out of the same and into the bearing.

In testimony whereof, I have hereunto set my hand.

JAMES F. CRAVEN.

Witnesses:

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JAS. L. WELDON.