No. 788,269. PATENTED APR. 25, 1905.

J. F. LEWIS.

AUTOMATIC GREASE CUP.

APPLICATION FILED JAN. 3, 1905.

Fig. 1.

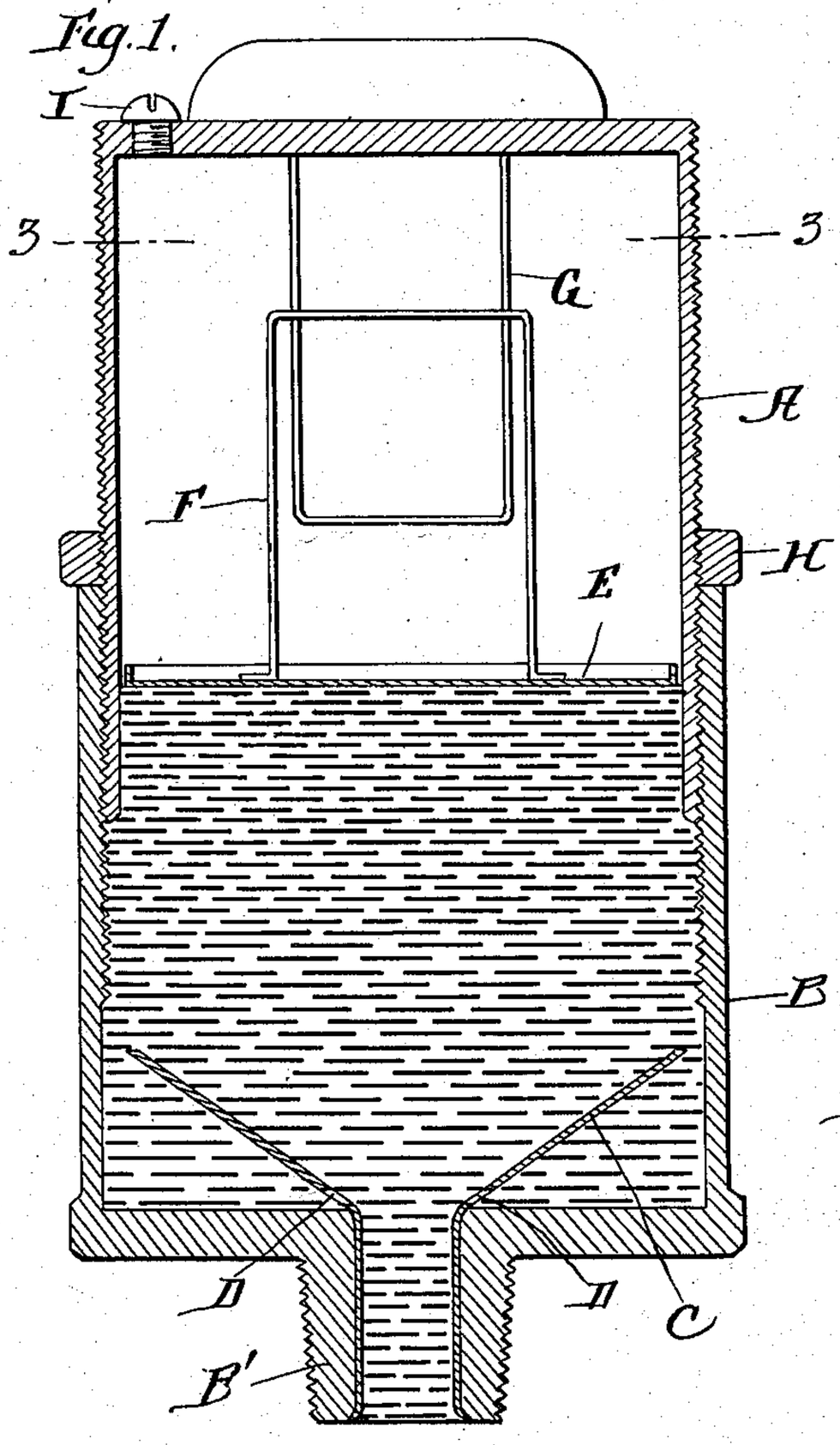


Fig. 2.

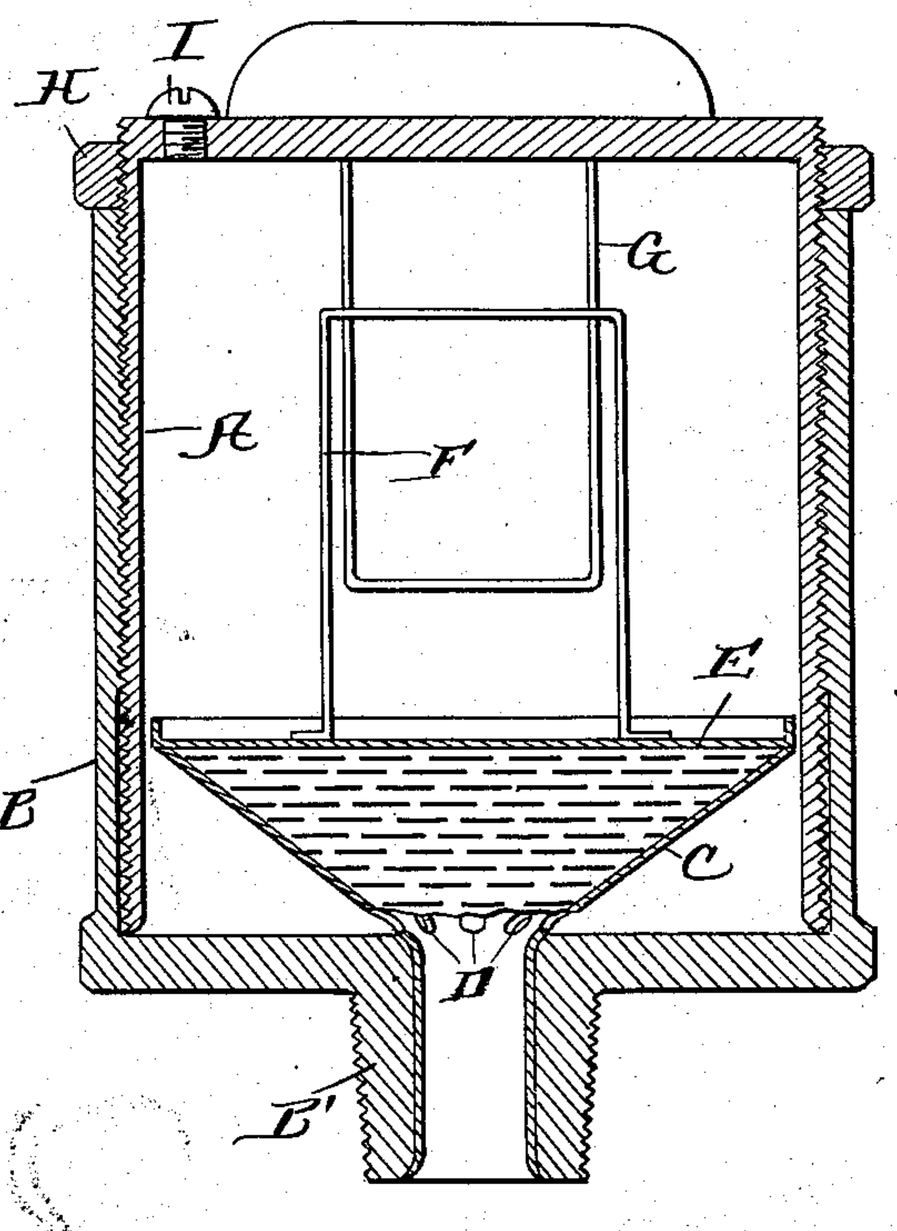
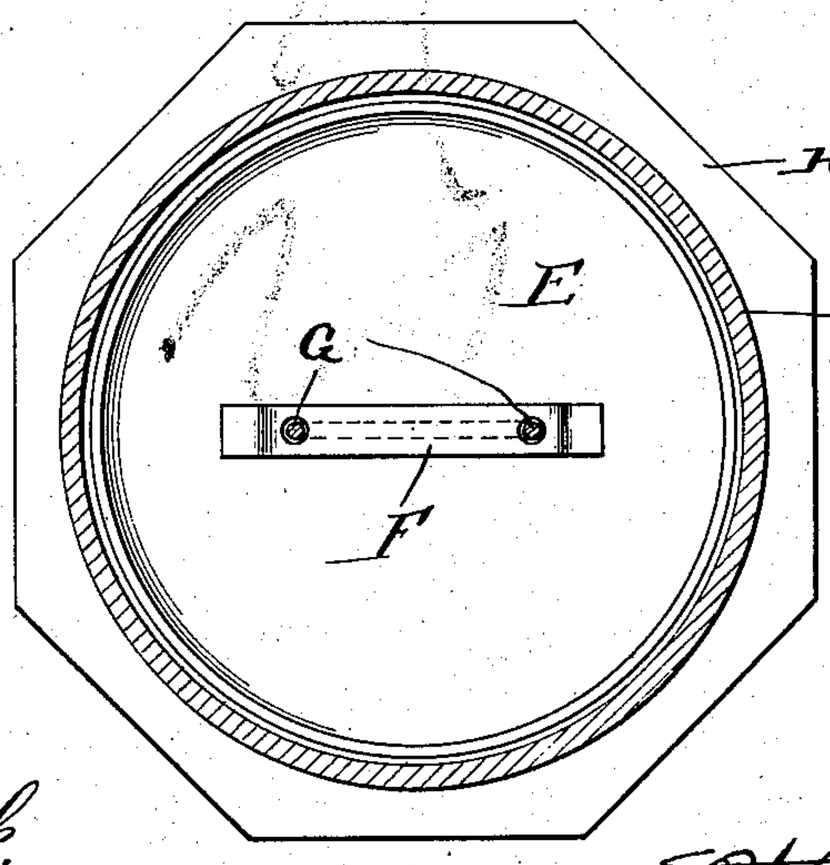


Fig. 3.



Witnesses:
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No. 788,269. Patented April 25, 1905.

UNITED STATES PATENT OFFICE.

JOHN F. LEWIS, OF PHILADELPHIA, PENNSYLVANIA.

AUTOMATIC GREASE-CUP.

SPECIFICATION forming part of Letters Patent No. 788,269, dated April 25, 1905.

Application filed January 3, 1905. Serial No. 239,351.

To all whom it may concern:

Be it known that I, JOHN F. LEWIS, a citizen of the United States, residing at Philadelphia, county of Philadelphia, and State of Pennsylvania, have invented a certain new and useful Improvement in Automatic Grease-Cups, of which the following is a specification.

My invention relates to a new and useful improvement in automatic grease-cups, and has for its object to provide a grease-cup in which the grease will be fed by means of compressed air compressed in the upper portion of the cup, and the grease-cup can be so constructed that grease will be fed evenly, and when the grease ceases to feed a small amount of grease will still be retained in the cup for emergency, and the upper portion of the cup will always empty itself.

With these ends in view this invention consists in the details of construction and combination of elements hereinafter set forth and then specifically designated by the claims.

In order that those skilled in the art to which this invention appertains may understand how to make and use the same, the construction and operation will now be described in detail, referring to the accompanying drawings, forming a part of this specification, in which—

Figure 1 is a vertical section through my improved grease-cup, showing the same in its operative position; Fig. 2, a vertical section of my improved grease-cup, showing the same in the position it would assume when the cup ceases to feed; Fig. 3, a cross-section taken on the line 3 3 of Fig. 1.

My improved grease-cup consists of two main portions A and B. Each of these portions is cup shape and inverted relative to one another and threaded one into the other, the upper portion A being exteriorly threaded and the lower portion B being interiorly threaded. In the lower part of the portion B is a funnel C, the hopper portion of the funnel extending upward into the cup, the neck of the funnel extending downward through an opening formed in the nipple B′, which is adapted to be threaded into the journal. The funnel C has a series of openings D formed through the same just above the bottom of the portion B. E is a flat disk, preferably turned up around this periphery to form an annular flange. This disk is adapted to lie upon the top of the grease and act as a floating piston. This disk E is slightly smaller in diameter than the interior of the portion A, so that the disk fits loosely within the portion A and is free to move by gravity without any friction. This disk E is designed to have a certain limited vertical movement relative to the portion A, but is designed to revolve with said portion A when the same is turned. This may be accomplished in any suitable manner, here shown as providing a strip F bent in the U shape, the two ends being secured to the top of the disk E and the strip extending upward a predetermined distance.

G is a U-shape frame, the ends of the two lugs being secured to the top of the portion A, the two vertical wires, forming legs of the frame G, passing through holes formed in the cross-piece of the frame F. Therefore the piston E has a certain limited vertical movement relative to the portion A, but is designed to be turned with the portion A.

In operation the portion B is filled with grease, the piston E, which extends below the lower rim of the portion A when the two parts are separated, is placed upon the top of the grease, and the portion A is threaded into the portion B, and by screwing the portion A downward into the portion B air is compressed in the portion A above the piston, and the air will exert an equal pressure upon the grease at all points on account of said disk E being in close contact with the grease. The disk in turning with the portion A will smooth the top of the grease, and the turning of the disk E relative to the grease will cause all air-bubbles to be removed from between the disk and the grease, so that the grease is in absolute contact with the disk at all points, and the air therefore cannot pass around the disk and enter between said disk and the grease and cause thereby an uneven pressure upon the grease. If the disk E did not turn with the portion A so as to hermetically seal itself against the grease, the air would be very liable to find a passage between the disk and the grease, and as the least resistance is through the center said grease would funnel c

through the center and would not feed evenly. As the grease is fed from the cup the portion A is from time to time screwed down further into the portion B, and when the lower rim of the portion A reaches the bottom of the portion B the disk E will then lie flat upon the upper edge of the hopper of the funnel C, as shown in Fig. 2, and thus no further air-pressure can be exerted upon the grease within the hopper; but the air will pass around the disk and around the hopper and force the grease that is below the outside of the hopper through the opening D downward through the neck of the funnel to the journal, thus entirely cleaning the portion A of grease; but the grease within the hopper will remain there, and this is a great advantage in grease-cups, particularly when used on locomotive-bearings and the like, for it is necessary to have a certain amount of grease held in reserve, so that if the grease-cup is emptied before being noticed there is a certain amount of grease left in the cup which will melt and run down by gravity if the journal becomes hot through the lack of grease, and this will save the journal until it is noticed by the engineer that the grease-cup is empty.

H is a lock-nut for locking the two parts A and B against movement relative to one another.

I is a screw adapted to be loosened to vent the portion A when it is removed from the portion B.

Of course I do not wish to be limited to the exact construction here shown, as slight modifications could be made without departing from the spirit of my invention.

Having thus fully described my invention, what I claim as new and useful is—

1. In a grease-cup, two cup-shaped portions inverted relative to one another and threaded one into the other, the lower portion being provided with a nipple depending from the same and adapted to be secured in a bearing, said nipple provided with an opening formed therethrough, the lower portion adapted to contain the grease, a disk fitting loosely within the upper portion and adapted to rest upon the grease, means for guiding said disk while sliding vertically relative to the upper portion and causing said disk to revolve when the upper portion is turned, as and for the purpose specified.

2. In an automatic grease-cup, two cup-shaped portions inverted relative to one another, the upper portion threaded into the lower portion, the lower portion provided with an opening extending through the bottom thereof, the lower portion adapted to contain grease, a disk fitted loosely within the upper portion and adapted to lie upon the top of the grease, means adapted to guide the disk while sliding vertically relative to the upper portion and to cause said disk to revolve with the upper portion when said upper portion is turned, and means for retaining a certain amount of grease within the cup against the air-pressure when the upper portion is threaded into the lower portion as far as possible.

3. In an automatic grease-cup, two cup-shaped portions inverted relative to one another, the upper portion threaded into the lower portion, the lower portion provided with a nipple extending downward therefrom, said nipple provided with an opening formed therethrough, a funnel located in the lower portion, the neck of the funnel communicating with the opening through the nipple, the hopper of the funnel lying within the lower portion, the greatest diameter of said hopper being less in diameter than the diameter of the interior of the upper portion of the cup, the hopper provided with a series of openings formed through the same just above the bottom of the lower portion, the lower portion adapted to contain grease, a disk fitting loosely within the upper portion and adapted to lie upon the top of the grease, means for guiding said disk while sliding in a vertical direction relative to the upper portion and causing said disk to revolve with the upper portion when the same is turned, a screw threaded through the wall of the upper portion for the purpose of venting the upper portion when the same is to be removed from the lower portion.

4. In an automatic grease-cup, two cup-shaped portions inverted relative to one another, the upper portion threaded into the lower portion, the lower portion provided with an opening formed through the bottom thereof, the lower portion adapted to contain the grease, a disk fitting loosely within the upper portion and adapted to lie upon the top of the grease, means for guiding the disk when sliding vertically relative to the upper portion and to cause said disk to revolve with the upper portion when said portion is turned, means for retaining a certain amount of grease within the cup against the air-pressure when the upper portion is threaded into the lower portion as far as possible, said grease retained in the cup adapted to displace sufficient air within the cup to create an air-pressure sufficient to expel all the grease except the retained portion, and means for holding the retained portion so that the same will be free of the walls of the cup, as specified.

In testimony whereof I have hereunto affixed my signature in the presence of two subscribing witnesses.

JOHN F. LEWIS.

Witnesses:
MARY E. HAMER,
L. W. MORRISON.