J. F. LEWIS.

AUTOMATIC GREASE CUP.

APPLICATION FILED SEPT. 22, 1911.

1,066,928.

Patented July 8, 1913.

2 SHEETS—SHEET 1.

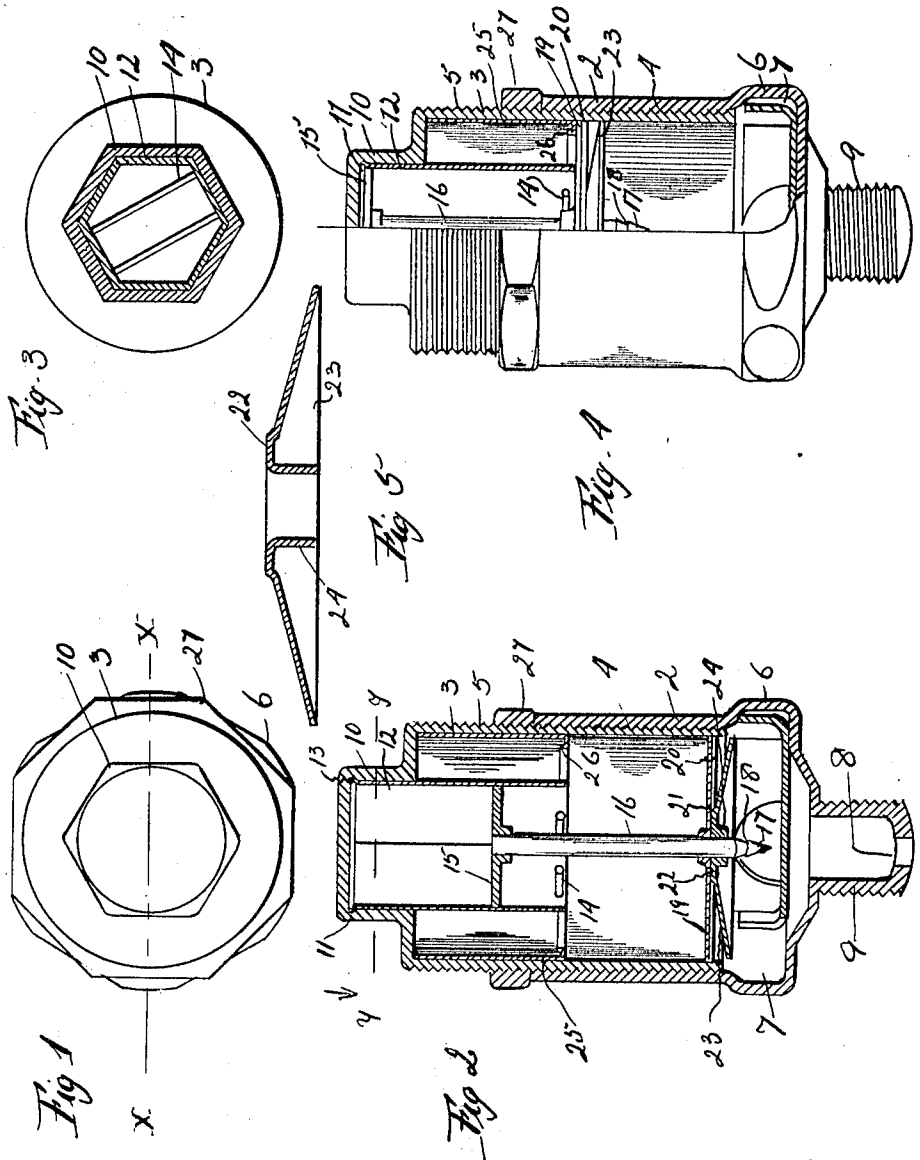


Fig. 3

Fig. 4

Fig. 5

Fig. 1

Fig. 2

Witnesses

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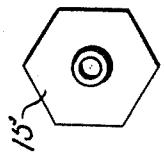


Fig. 9.

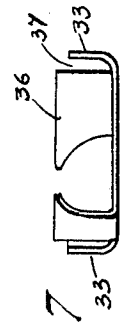


Fig. 7

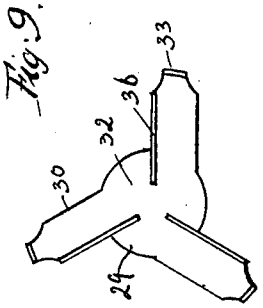


Fig. 8.

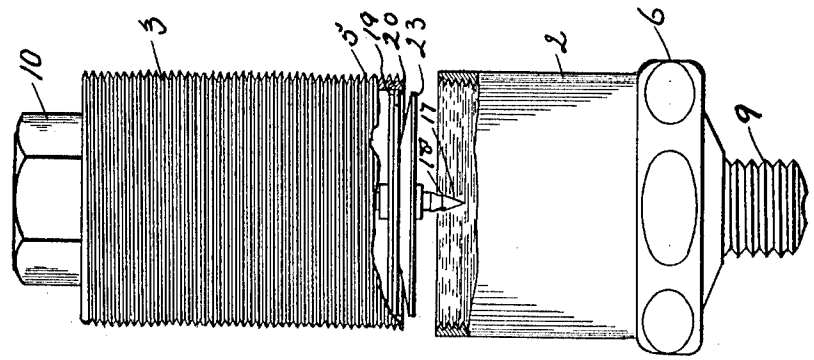


Fig. 6.

Witnesses
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UNITED STATES PATENT OFFICE.

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AUTOMATIC GREASE-CUP.

1,066,928. Specification of Letters Patent. Patented July 8, 1913.

Application filed September 22, 1911. Serial No. 650,834.

To all whom it may concern:

Be it known that I, JOHN F. LEWIS, a citizen of the United States, residing at Philadelphia, in the 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 new and useful improvements in automatic grease cups, and has for its object to provide a device of this character whereby the grease may be fed by means of compressed air contained in the upper portion of the cup, the pressure of said compressed air being regulated primarily by the distance the top is threaded into the body, said pressure afterward being gradually decreased as the grease is used.

Another object of the invention is to provide means carried by the top which will be acted upon by the compressed air to force the grease out of the cup, and to also provide means for limiting the movements of the former means.

A further object of the invention is to provide a plate which will overlie the outlet from the cup, so as to prevent a direct flow of grease to the outlet, and to form with said plate suitable means or scraping members which will scrape a portion of the grease free from the disks carried by the top when said top is being removed from the body.

Other objects will be brought out and fully explained in the following specification.

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, I will describe its construction in detail, referring by letter to the accompanying drawing forming a part of this specification, in which—

Figure 1, is a plan view of an automatic grease cup made in accordance with my improvement. Fig. 2, is a section at the line *x*—*x* of Fig. 1. Fig. 3, is a section at the line *y*—*y* of Fig. 2, looking in the direction of the arrow. Fig. 4, is a side elevation of the grease cup one-half thereof being shown in section showing the disks in contact with the tubular stop. Fig. 5, is a transverse view of one of the disks. Fig. 6, is a side elevation of the grease cup partly in section showing the top about to be inserted in to the body. Fig. 7, is a side elevation of the baffle plate and scraping leaves bent to form, and ready to be placed in the cup. Fig. 8, is a plan view thereof, and Fig. 9, is a face view of the piston.

In carrying out my invention as here embodied, 2 represents the body of the grease cup and 3, the top portion thereof. The body is provided with internal threads 4, while the top portion is provided with corresponding external threads 5, in order that they may be screwed together. The lower portion of the body is swelled out or enlarged as at 6, to form an enlarged chamber 7, from which leads the outlet 8, formed by the threaded nipple 9, said nipple being screwed into the bearing to be lubricated. From the closed end of the top 3, is formed a hexagon extension 10, in the interior walls of which in proximity to the top wall thereof, is formed a groove 11, and into this groove is crimped the upper end of the hexagon barrel 12 as at 13. Across the free end of this barrel are placed the wire stops 14, the ends thereof being secured in the walls of the hexagon barrel. In the hexagon barrel 12 is slidably mounted the piston 15 and to said piston is attached the rod 16, the end of which is conical in shape as indicated by 17. Said rod 16 is reduced in circumference or grooved above the conical portion as at 18 to produce a finger hold whereby said rod 16 and the piston 15 can be drawn outward within certain limits or until the piston 15 contacts with the wires 14.

On the rod 16 adjacent its conical end, is mounted the flat disk 19 and below this disk is mounted a packing 20 having a central opening 21 which registers with the periphery of the cupped up portion 22 of the concavo-convex disk 23 which has formed therewith a boss 24 whereby said disk is secured to the rod 16. When the disks are in place, the cupped up portion 22 of the disk 23 will contact with the disk 19 and the packing carried by the disk 23 will lie against the under face of the disk 19. The disk 23 being concavo-convex, its periphery will be removed some distance from the periphery of the flat disk 19 which will permit the packing to leave the flat disk 19 at cer-

tain times as will be hereinafter more fully explained. The packing 20 being of leather or other suitable material will conform itself to the irregularities on the interior face of the top.

25 denotes the tubular stop which is fitted in to the top 3, the lower end of this stop terminates intermediate the length of the side walls of the top, and this end is turned back upon itself to produce the bead 26 with which will contact the flat disk 19 to limit the upper movements of the disks, and the surfaces of the flat disk and the bead will form an efficient closure which will prevent the grease from entering the upper portion of the top or the air chamber.

27 is a jam-nut which is run upon the threads 5 of the top and is adapted to be forced into contact with the upper edge of the body, so as to hold the top in any adjustment as may be readily understood.

32 denotes an imperforated baffle plate, provided with radiating arms 30, the ends of which project at right angles to the arms proper, forming locking or holding members 33, which enter the corners of the enlarged hexagon portion 6, of the body to retain the baffle plate in position. Formed integral with one edge of each of the arms, is a scraping member 36 which stands at right angles to the arm and terminates some distance from the locking member leaving a space 37 between one end of the scraping member and its adjacent locking member. Into this space enters the side walls of the top, when the same is threaded all the way into the body as will be plainly seen in Fig. 2.

In Fig. 6, it will be seen that when the body has been filled with grease and the top is about to be threaded therein, the conical end of the rod 16 may be readily inserted in to the grease, and as soon as the concavo-convex disk 23 contacts with the grease, a slight downward movement will cause the flat disk 19 to enter the top, thus centering the parts to prevent the disks from catching in the threads or becoming lodged between the edges of the body and top. When the parts have been brought into their correct positions, the top portion is screwed into the body and the disks will be forced upward into the top, compressing the air until said disks are stopped by the bead 26 on the tubular stop 25, the space above the bead acting as a reservoir for the compressed air. Any further downward movement of the top will force the grease through the outlet 8, to the bearing with screw pressure, but when the top is stopped in any position, the air compressed in the upper portion thereof will exert sufficient pressure upon the disks and grease to continue to feed the latter. It will be noted that when the edges of the flat disk come in contact with the bead 26, the center portion of said disk will come in contact with the hexagon barrel 12, thus supporting the disk against undue pressure. When the top 2 has been threaded into the body 3 until the edge of the former lies below the upper edges of the scraping members 36 and a sufficient amount of the grease has been fed from the cup to bring the concavo-convex disk 23 in contact with the scraping members, the air pressure may pass around the disks since the packing may drop into contact with the concavo-convex disk, taking it out of contact with the inner walls of the top, thus permitting the air to work directly upon the grease and force it out through the outlet. The baffle plate being mounted directly over the outlet causes the grease to be fed indirectly to said outlet, so that the jarring of the machinery will not cause the grease to be shot into the outlet with great force. When the grease cup is empty, the top is backed out, and in so doing, the disks will be caused to revolve with the top and the scraping members will level off the grease, permitting only a small amount to remain in the top, and that same amount will be contained in the concavo-convex disk.

Of course I do not wish to be limited to the exact details of construction as here shown, as these may be varied within the limits of the appended claims, without departing from the spirit of my invention.

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

1. A grease cup consisting of a body and a top, the latter threaded into the former, a hexagon barrel carried by the top, and terminating intermediate the ends thereof, a plunger slidably mounted in the barrel, means for preventing the accidental withdrawal of said plunger, a rod secured to the plunger, a flat disk mounted upon the opposite end of said rod, a concavo-convex disk mounted upon the rod below the flat disk, and so arranged that it diverges from the flat disk toward its periphery, a baffle plate, arms formed integral with said baffle plate, locking members formed from the ends of the arms and projecting at right angles thereto, and scraping members standing at right angles to said arms, along one edge thereof.

2. In combination with a grease cup, comprising a body having an outlet, and a top, the latter being threaded into the former, a baffle plate, integral radiating arms formed therewith, locking members formed from the ends of the arms and projecting at right angles thereto, and scraping members standing at right angles to said arms, along one edge thereof, said baffle plate being held in the body by the locking members and overlying the outlet, and means mounted in the

top whereby air pressure may be produced when said top is screwed into the body.

3. In combination, a body having an enlarged hexagon portion provided with an outlet, a top, the closed end of which has a hexagon extension produced therefrom, said top being threaded into the body, said hexagon extension having a groove therein, a hexagon barrel mounted in the extension, a portion thereof being forced into the groove to prevent the withdrawal of the barrel, a hexagon plunger mounted in the barrel, a pair of wires lying across the outlet of the barrel to prevent the accidental withdrawal of the plunger, a rod carried by the plunger having a conical end, and a portion in proximity to the conical end being reduced in circumference to produce a finger hold, a flat disk mounted upon the rod adjacent the finger hold, a concavo-convex disk having a cupped up portion also mounted upon the rod beneath the flat disk, the cupped up portion contacting with the upper face of said disk, a packing having a central opening, said opening adapted to register with the cupped up portion, and lying between the disks, and means for limiting the upward movement of the disks.

4. In combination, a body having an enlarged hexagon portion provided with an outlet, a top, the closed end of which has a hexagon extension produced therefrom, said top being threaded into the body, said hexagon extension having a groove therein, a hexagon barrel mounted in the extension, a portion thereof being forced into the groove to prevent the withdrawal of the barrel, a hexagon plunger mounted in the barrel, a pair of wires lying across the outlet of the barrel to prevent the accidental withdrawal of the plunger, a rod carried by the plunger having a conical end, and a portion in proximity to the conical end being reduced in circumference to produce a finger hold, a flat disk mounted upon the rod adjacent the finger hold, a concavo-convex disk having a cupped up portion also mounted upon the rod beneath the flat disk, the cupped up portion contacting with the upper face of said disk, a packing having a central opening, said opening adapted to register with the cupped up portion, and lying between the disks, a tubular stop mounted in the top having its lower edge turned back upon itself to produce a bead and means for causing the grease to enter the outlet indirectly.

5. In combination, a body having an enlarged hexagon portion provided with an outlet, a top, the closed end of which has a hexagon extension produced therefrom, said top being threaded into the body, said hexagon extension having a groove therein, a hexagon barrel mounted in the extension, a portion thereof being forced into the groove to prevent the withdrawal of the barrel, a hexagon plunger mounted in the barrel, a pair of wires lying across the outlet of the barrel to prevent the accidental withdrawal of the plunger, a rod carried by the plunger having a conical end, and a portion in proximity to the conical end being reduced in circumference to produce a finger hold, a flat disk mounted upon the rod adjacent the finger hold, a concavo-convex disk having a cupped up portion also mounted upon the rod beneath the flat disk, the cupped up portion contacting with the upper face of said disk, a packing having a central opening, said opening adapted to register with the cupped up portion, and lying between the disks, a tubular stop mounted in the top having its lower edges turned back upon itself, to produce a bead, a baffle plate having radiating arms, the ends of which are bent at right angles to produce stops, said stops adapted to enter the corners of the enlarged hexagon portion of the body, and scrapers formed integral with the arms, and adapted to scrape the grease from the top, when the same is to be removed for refilling the cup.

6. A grease cup consisting of a body having an outlet, and a top, the latter threaded into the former, means mounted in the top, whereby air pressure may be produced when the top is screwed into the body, and a baffle plate disposed across the top of the outlet to cause the grease to be fed indirectly to the outlet, said baffle plate carrying means for scraping the grease from the top when said top is removed from the body.

7. A grease cup consisting of a body having an outlet, and a top, the latter threaded into the former, means mounted in the top, whereby air pressure may be produced when the top is screwed into the body, a baffle plate over-lying the outlet, means for holding said baffle plate in position, and scrapers carried by the baffle plate for the purpose set forth.

8. A grease cup consisting of a body having an outlet, and a top, the latter threaded into the former, means mounted in the top, whereby air pressure may be produced when the top is screwed into the body, a baffle plate over-lying the outlet, arms radiating from said baffle plate, means carried by said arms for holding said baffle plate in place, and scrapers carried by said arms for removing grease from the top when said top is removed from the body.

9. A grease cup consisting of a body having an outlet, and a top, the latter threaded into the former, means mounted in the top, whereby air pressure may be produced when the top is screwed into the body, a baffle plate over-lying the outlet, arms radiating from said baffle plate, locking members formed from the ends of the arms, adapted

to engage a portion of the body to hold the baffle plate in position, and means carried by the arms for removing the grease from the top when said top is removed from the body.

10. A grease cup consisting of a body having an outlet, and a top, the latter threaded into the former, means mounted in the top, whereby air pressure may be produced when the top is screwed into the body, a baffle plate over-lying the outlet, arms radiating from said baffle plate, locking members formed from the ends of the arms and projecting at right angles thereto, and scraping members carried by the arms, standing at right angles thereto, said scraping members adapted to cut the grease from the top when said top is removed from the body.

11. In combination, a grease cup having an outlet, a disk movable within the cup, a baffle plate lying above the outlet, and scraping means carried by the baffle plate for scraping the grease from the disk when said disk is removed.

12. In combination, a grease cup having an outlet, a disk movable within the cup, a baffle plate lying above the outlet, scraping means carried by the baffle plate for scraping the grease from the disk when said disk is removed, and means for detachably and adjustably holding the baffle plate in the cup.

13. A grease cup consisting of a body and a top, the latter threaded into the former, a rod slidably mounted within the top, means for preventing the withdrawal of said rod, a flat metallic disk mounted upon the outer end of said rod, a concavo-convex metallic disk also mounted upon the rod beneath the flat disk, the central portions of said disks contacting and the lower disk converging from the upper one toward its periphery, said disks dividing the cup into a grease receptacle and an air reservoir and a leather packing mounted between said disks, the periphery of said packing adapted to drop down against the face of the lower disk when said disks have reached the limit of their outward movement with relation to the top.

14. In a plunger for grease cups, a rod adapted to be slidably mounted within the cup, a flat disk carried by said rod, a concavo-convex disk also mounted on said rod below the flat disk, a cupped up portion formed from the center of the concavo-convex disk and adapted to contact with the central portion of the flat disk and a flexible packing provided with a central opening mounted between said disks, the central opening registering with the cupped up portion for the purpose specified.

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

JOHN F. LEWIS.

Witnesses:
EDW. W. AUSTIN,
M. H. LA REE.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."