June 17, 1930. C. R. BUCHET 1,764,387

APPARATUS FOR FLUSHING GREASE CONTAINERS

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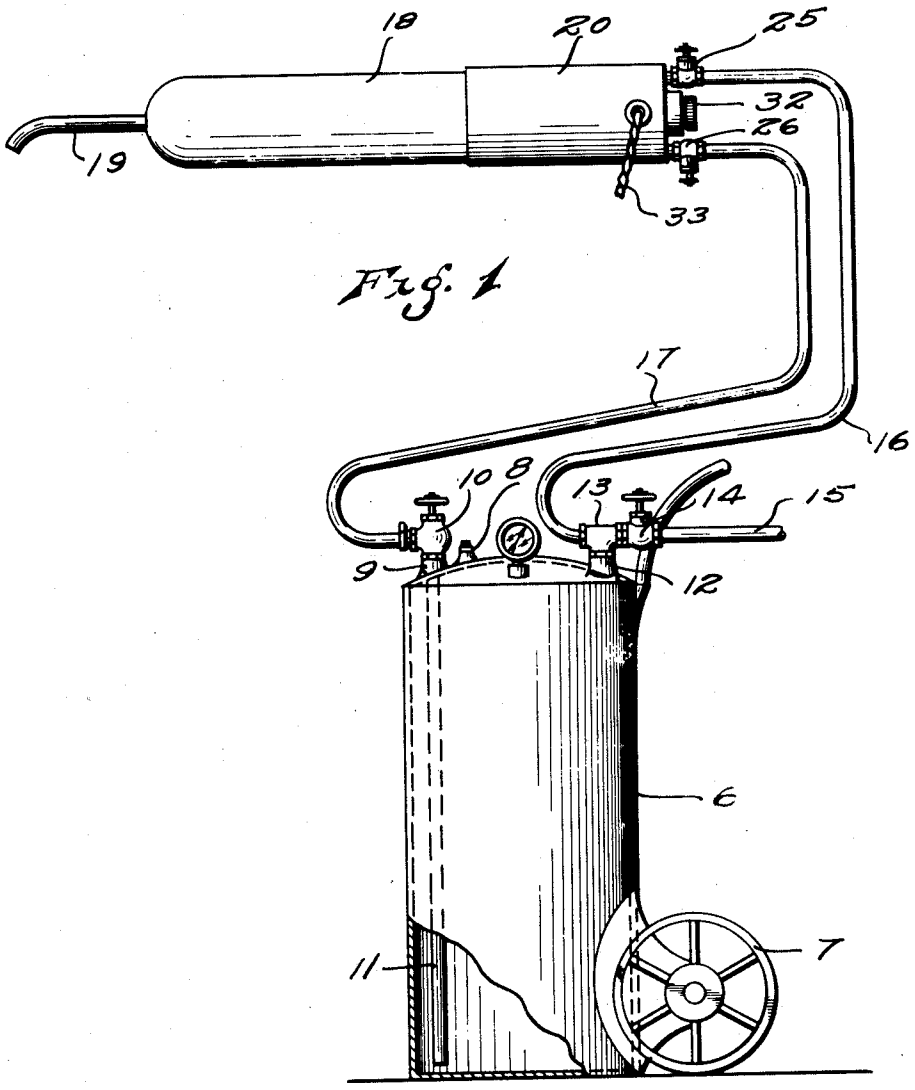


Fig. 1

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Fig. 2

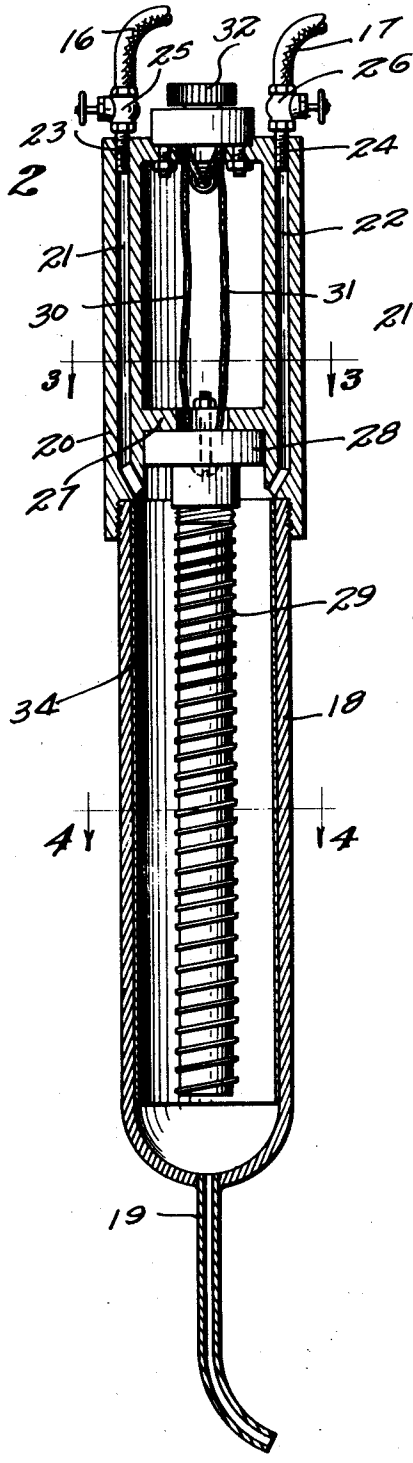


Fig. 3

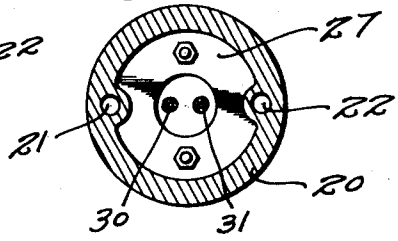
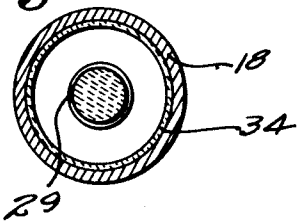


Fig. 4



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Patented June 17, 1930

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UNITED STATES PATENT OFFICE

CONRAD ROBERT BUCHET, OF LONG BEACH, CALIFORNIA, ASSIGNOR, BY DIRECT AND MESNE ASSIGNMENTS, TO ADJUSTO EQUIPMENT COMPANY, OF LOS ANGELES, CALIFORNIA, A CORPORATION OF CALIFORNIA

APPARATUS FOR FLUSHING GREASE CONTAINERS

Application filed March 13, 1928. Serial No. 261,212.

This invention relates to an apparatus for flushing grease containers. An automobile transmission case or a differential case are examples of such containers. However, it will be apparent that the invention is in no manner limited to use with these specific containers. As aptly illustrating the invention, such containers are hereinafter specifically referred to in the body of the specification. A relatively heavy grease is commonly used therein. This grease has hard fractions which result from usage or are initially present. They cling to and coat the walls and elements within the cases, making cleaning difficult by the dissolving and laving action of flushing liquids.

The objects of this invention are first, to provide for agitating the flushing liquids within the container so as to better erode the packed grease and loosen the same; second, to provide for the introduction of the flushing liquid in heated condition; third, to provide for the maintenance of heat in the container during the flushing action; and fourth, to provide means for accomplishing the aforementioned objects.

Other objects and advantages will be made fully apparent from the following specification considered in connection with the accompanying drawings, in which:

Fig. 1 is a side elevation showing means for carrying out the steps of the method, there being a flushing barrel and a dispenser of flushing liquid; Fig. 2 is an axial section through the flushing barrel; Figs. 3 and 4 are sections as seen on the lines correspondingly numbered in Fig. 2.

Referring with more particularity to the drawing, the dispenser comprises a closed tank 6 which may be suitably supported upon wheels 7 for transport. A boss for filling and suitably closed by a plug is indicated generally by 8. A discharge boss is indicated by 9 and has a valve 10 mounted therein. The valve chamber has a riser pipe 11 connected thereto extending short of the bottom of the container so that flushing liquid, such as oil may be completely discharged from the tank. A boss 12 for actuating gas is marked 12. Attached thereto is a T fitting and connected to one branch is a valve 14 controlling the inflow of actuating gas to the fitting. A pipe 15 leads to a source of supply of actuating fluid, such as an air compressor. The other branch of the fitting is provided with a hose 16, and the discharge valve 10 has a hose 17.

The barrel comprises a cylindrical body 18 having a rounded end to which a nozzle 19 is attached. The other end is externally threaded and attached thereto is a barrel head 20, having passages 21 and 22 extending longitudinally therethrough and threaded at their outer ends to receive nipples 23 and 24. Attached to the nipples are valves 25 and 26 to which the hoses 16 and 17 are connected. A partition base 27 extends across the barrel and has mounted therein an electrical heating element 28 comprising a suitable foundation of insulating material and a resistor element 29 in the form of a wire, the terminals of which are connected to conductors 30 and 31 in circuit with a switch 32 mounted on the end of the head. A duplex cord 33 is shown leading from the switch and is adapted to be connected to a source of electrical energy. Within the barrel body is a lining of mica or like material indicated by 34.

The differential case of an automobile is opened to receive the nozzle 19. The dispenser 6 has a charge of flushing oil or liquid. The pipe 15 is connected to a source of compressed air or any other suitable gas. The duplex cord 33 is connected to a source of electrical energy. The case having been drained of its lubricant, is now charged with flushing liquid by opening valves 14, 10 and 26, maintaining valve 25 closed. Switch 32 is operated so that current will flow through the resistor and heat the flushing oil in its passage through the barrel, so that it is in condition to aid in softening and dissolving the grease retained in the case.

The oil flowing through the nozzle may be heated to a high temperature by simultaneously introducing air. This causes agitation and as heating is due to connection primarily, a rapid rise in temperature is effected and a further agitation in the receptacle being flushed. After the case has been charged with hot lubricant, valve 10 is closed and

valve 25 opened. This results in air passing through the barrel and being heated. The hot air bubbles through the charge of flushing oil causing violent agitation, dislodging the adhering grease. The heat of the air maintains the oil in heated condition. The result is a thorough cleaning of the case and its elements, the action being by dissolving, loosening and erosion of the adhering grease.

What I claim is:

1. A manually portable device for use in flushing a grease container comprising a barrel having an elongated nozzle for insertion into the container, a passage extending through said barrel for liquid, a passage extending through said barrel for gas, and means in said barrel to heat the fluids introduced thereinto.

2. A manually portable device for use in flushing a grease container comprising a barrel having a common chamber for fluid, a heater in said chamber, a passage for gas communicating with said chamber, a passage for liquid communicating with said chamber, and an elongated nozzle leading from said chamber.

3. A manually portable device for use in flushing a grease container comprising a barrel having a common chamber for fluid, an electrical heater in said chamber, a passage for gas communicating with said chamber, a passage for liquid communicating with said chamber, and an elongated nozzle leading from said chamber.

4. A manually portable device for use in flushing a grease container comprising a barrel body having an elongated nozzle for insertion into the container, a barrel head detachably secured thereto, said barrel head having a passage for gas and a passage for liquid, and a heater secured to said barrel head for extension into the chamber of said body.

5. A manually portable device for use in flushing a grease container comprising a barrel body having an elongated nozzle for insertion into the container, a barrel head detachably secured thereto, said barrel head having a passage for gas and a passage for liquid, and an electrical heater secured to said head and extending into the chamber of said body.

6. A manually portable device for use in flushing a grease container comprising a barrel body having an elongated nozzle for insertion into the container, a barrel head detachably secured thereto, said head having a passage for gas and a passage for liquid, a partition base extending across said head, an electrical heater mounted upon said base and extending into the chamber of said body.

7. A manually portable device for use in flushing a grease container comprising a barrel body having an elongated nozzle for insertion into the container, a barrel head detachably secured thereto, said head having a passage for gas and a passage for liquid, a heater secured to said head for extension into the chamber of said barrel, and valves controlling said passages mounted on said head and means controlling said heater mounted on said head.

8. A manually portable device for use in flushing a grease container comprising a barrel body having an elongated nozzle for insertion into the container, a barrel head detachably secured thereto and having a partition space extending thereacross, said head having a passage for gas and a passage for liquid, valves controlling said passages mounted on said head, an electrical heater mounted on said base and extending into the chamber of said body, and a switch controlling said heater mounted on said head.

In witness that I claim the foregoing I have hereunto subscribed my name this 1st day of March, 1928.

CONRAD ROBERT BUCHET.