Sept. 12, 1933. C. R. BUCHET 1,926,512

VISIBLE FLUSHER

Filed March 5, 1929

Fig. 1

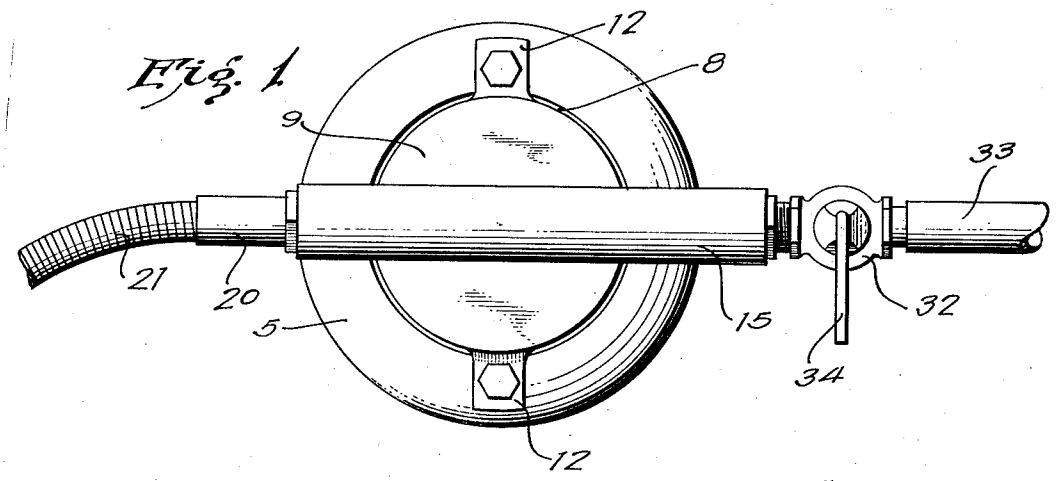


Fig. 2

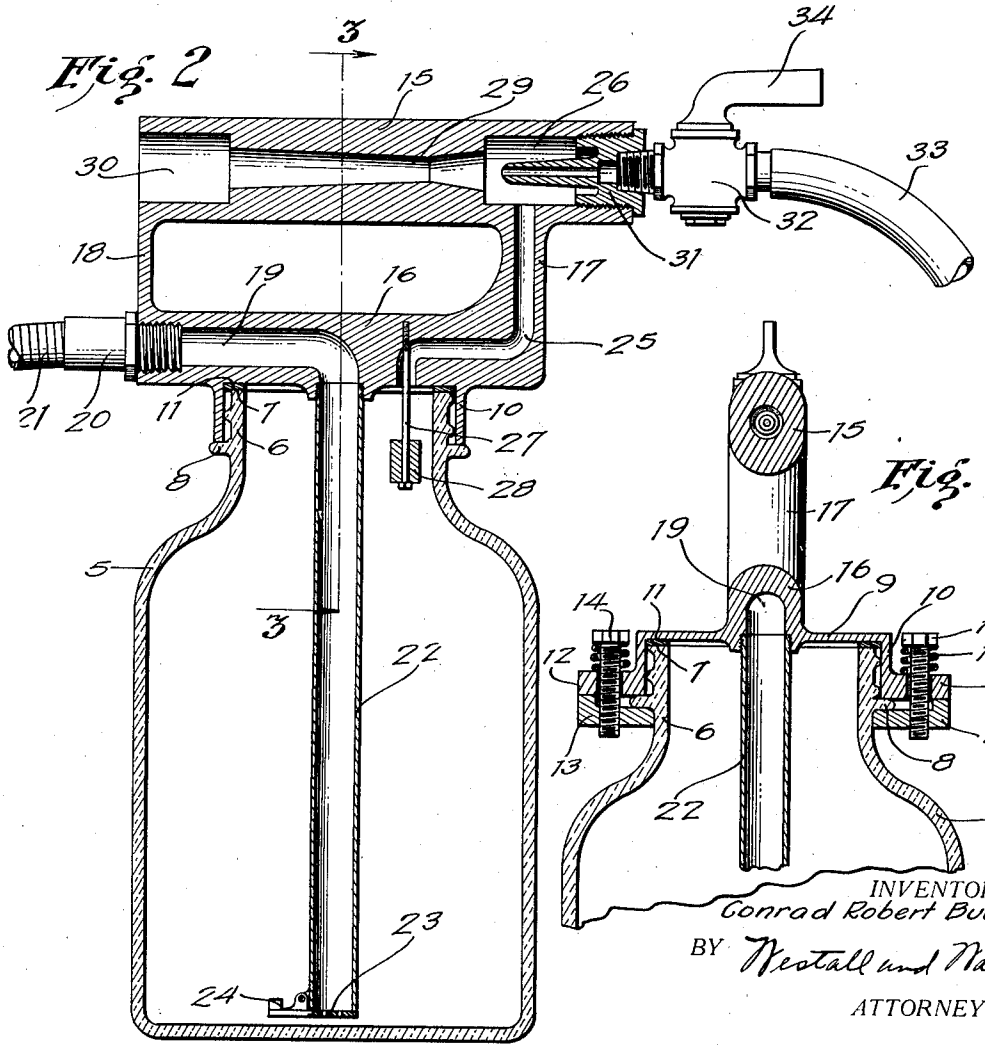


Fig. 3

INVENTOR.
Conrad Robert Buchet
BY Westall and Wallace
ATTORNEYS.

Patented Sept. 12, 1933 1,926,512

UNITED STATES PATENT OFFICE

1,926,512

VISIBLE FLUSHER

Conrad Robert Buchet, Long Beach, Calif., assignor of one-fourth to William G. Lacy, one-fourth to Walter P. Lacy, and one-fourth to Clinard F. Chambers, all of Los Angeles, Calif.

Application March 5, 1929. Serial No. 344,238

4 Claims. (Cl. 184—1.5)

This invention relates to a device for draining and flushing gear cases and the like. It is especially adaptable for use upon automobiles, but is not limited to such use.

As is well known flushing of gear cases and like containers of grease is effectively performed by draining the grease from the container, then washing the container by alternately introducing and withdrawing flushing fluid. The present invention appertains to a device which will perform the above desired operations.

The objects of this invention are to provide a device of the character described having any or all of the following features:—means pneumatically operated to drain liquid into a container and then operable to eject the liquid from the container at will; a container having a novel blow-off means to prevent rise in pressure in the container above a selected high-pressure; a novel device to operate as an aspirator or compressed air pump; and details of structure contributing to portability, ease of manipulation, visibility of the container contents, prevention of ejection of solid particles from the container and also prevention of ejection of the liquid in the container by way of the aspirator or ejector.

These objects together with other objects and corresponding accomplishments are obtained by means of the embodiment of my invention illustrated in the accompanying drawing, in which:—

Fig. 1 is a plan view of a flusher; Fig. 2 is a vertical section through the flusher; and Fig. 3 is a section as seen on the line 3—3 showing a fragment of the flusher.

Referring more particularly to the drawing, the flusher comprises broadly a container 5 preferably of bottle form and made of glass so that the contents may be visible and forming a sight container. The container has a neck 6 with a mouth defined by a substantially flat rim 7. An external flange 8 is shown formed on the neck of the container.

Mounted upon the container is an ejector device comprising a body with a cap portion 9 having a collar 10 depending therefrom and adapted to slip over the neck of the bottle and rest upon the flange 8. The cap portion seats upon the mouth of the bottle and a ring washer 11 is provided to prevent leakage. Ears 12 extend from the cap so as to overhang the flange 8. Lugs 13 for cooperation with the ears are provided to engage the underside of flange 8. Alined openings are provided in the coacting ears and lugs for bolts 14. The openings in lugs 13 are tapped to provide for threaded engagement of the bolts with the lugs. The openings in the ears are of such diameters that the bolts 14 may slide therein. Compression springs 15 are provided between the heads of the bolts and the ears. Formed on the cap is a diametrically extending body having parallel members 15 and 16 spaced so that member 15 forms a hand grip. The members are joined at one end by an upright portion 17. At the front, they are shown joined by a rib 18. The hand grip portion 15 is of such dimensions that fingers of the hand of the operator may encircle and grip the member 15. In the member 16 is a service passage 19 opening at the front of the body and tapped to receive a coupler 20 so as to attach to the passage a flexible tube 21. The service passage 19 extends about to the center of the cap and is directed downwardly, an annular boss being formed and threaded to receive a service tube 22 which extends to a point adjacent the bottom of the bottle. At the lower end of the tube are ears serving for pivotal mounting of a perforated check valve 23, counterweighted as indicated by 24 so that normally the valve is maintained closed. Liquid can pass from the container through the tube 22, but due to the perforations in valve 23, the fluid so passing will be strained. Opening into the cap is an actuating fluid passage 25 leading to an aspiration or actuating fluid chamber 26 formed in the hand grip branch. A stem 27 is secured to the body at the inlet of passage 25 and slidably mounted thereon is a float valve 28 adapted to close the passage 25. The aspiration chamber 26 is threaded at its rear, and at the front connects with a Venturi passage 29 which is enlarged at the front end forming a delivery passage 30. Threaded into the rear end of the aspiration chamber is an ejector nozzle 31 tapped to receive a valve fitting 32 connected to an air hose 33. The valve fitting is provided with a valve having a handle 34 for manipulation of the valve.

To operate the device, the hose 21 is inserted in the container to be drained, the bottle 5 being empty. The air hose 33 is connected to a source of air pressure, and valve handle 34 operated to open the valve and admit air through the ejector nozzle 31. This causes aspiration of air from the bottom side, the air being delivered through the Venturi and delivery passage 30. Withdrawal of air from the bottle causes induction of grease from the container to be drained. The grease passes into the bottle 5, the valve 23 opening to admit any particles, such as chips of gear teeth or other solids. As the liquid level rises in the bottle, the float valve 28 is lifted to close the

passage 25 and thereby prevent the liquid from passing into the ejector and being delivered through the delivery passage 30. In handling the flusher, the operator grips it by placing his fingers around the hand grip 15 and with his thumb free so that it can be placed over the end of the delivery passage 30 and thereby close the latter. After the bottle has been filled, the hose 21 is withdrawn from the container being drained and is placed in a grease receptacle. The operator then places his thumb over the delivery opening 30 and closes the latter. The air pressure backs up and air passes through the passage 25 to the bottle, acting upon the surface of the grease and discharging it through the service tube 22, service passage and hose 21 to the receptacle, the device acting as a compressed air pump. The valve 23 closes and prevents solid particles from passing through the delivery tube and retains them in the bottle. The tube 22 is preferably formed as a magnet causing any fine magnetic materials to adhere to the exterior of the tube and preventing them from being carried out of the bottle when the contents of the latter are ejected. After the bottle has been emptied and the grease container has been drained, the hose 21 is placed in a receptacle containing flushing liquid. The delivery passage 30 is then opened so that flushing liquid is drawn into the bottle 5. Thereupon, the hose 21 is introduced into the container to be flushed. The delivery passage 30 is then closed so as to cause the flushing fluid to be forced into the container. After the bottle has been emptied, the passage 30 is opened, and the flushing liquid withdrawn from the container into the bottle. The flushing liquid is alternately delivered to the container and withdrawn so as to completely flush the same. Obviously, no solid particles which have drawn into the bottle will be returned to the container both by reason of the tube 22 and check valve 23. After flushing has been completed, the hose 21 is withdrawn from the container and the bottle emptied by discharging the flushing liquid into a waste receptacle. If there are any solid particles in the bottle, the cap is loosened so that the bottle can be detached and emptied. If for any reason, the pressure in the bottle 5 becomes excessive, the cap will unseat against the action of compression springs 14 and allow the air to blow-off. By employing a visible or transparent bottle, it can be at all times seen that no solid particles are being introduced into the container being flushed. With flushing devices, which do not have a visible receptacle, and are not provided with a screen check, it is possible that solid particles which are withdrawn from a gear case in one automobile may be delivered in the next operation to the gear case next flushed. That this can not happen, will be evidenced from an inspection of the container, and the latter can be emptied just as soon as solid particles lodge in the bottle. Obviously, the entire device is portable and the flusher can be operated as an ejector or a compressed air pump at the will of the operator by closing the delivery passage 30 with his thumb or opening the latter by removal of his thumb.

What I claim is:—

1. A manually controlled device of the character described comprising an ejector having an actuating fluid chamber, an actuating fluid passage and a freely open ejector delivery outlet arranged to be stopped by the hand of the operator at will; a closed sight container, a single service conduit opening to said container adjacent the bottom, said actuating fluid passage opening to said container at the top thereof, and a screen check valve for said service conduit normally closed against passage of fluid outwardly from said container.

2. A manually controlled device of the character described comprising an ejector having an actuating fluid chamber, an actuating fluid passage and a freely open ejector delivery outlet arranged to be stopped by the hand of the operator at will; a closed sight container, a single service conduit opening to said container adjacent its bottom, said actuating fluid passage opening to said container at the top thereof, a float valve in said container controlling the actuating fluid passage, and a screen check valve for said service conduit normally closed against passage of fluid outwardly from said container.

3. A manually controlled device of the character described comprising an ejector having an actuating fluid chamber, an actuating fluid passage and a freely open ejector delivery outlet arranged to be stopped by the hand of the operator at will; a closed sight container, a single service conduit opening to said container adjacent its bottom, said actuating fluid passage opening to said container at the top thereof; said container having a neck with a mouth, a cover to close said mouth having the ejector body integral therewith and including a collar to embrace said neck, said cover having a seat to engage the mouth and close the latter, and yieldable means to hold said cover seated on said mouth and thereby to provide a safety blow-off.

4. A manually controlled device of the character described comprising an ejector having an actuating fluid chamber, an actuating fluid passage, a delivery outlet arranged to be stopped by the hand of the operator and a service supply passage; a closed sight container, a single service tube connected to said service supply passage and opening to said container adjacent its bottom, said actuating fluid passage opening to said container at the top thereof; said container having a neck with a mouth, a cover to close said mouth having the ejector body integral therewith and including a collar to embrace said neck, said cover having a seat to engage said mouth and close the latter, and yieldable means to hold said cover on said mouth and thereby to provide a safety valve; said cover being formed with a hand grip through which said delivery passage extends and said passage opening through the end of the hand grip.

CONRAD ROBERT BUCHET.