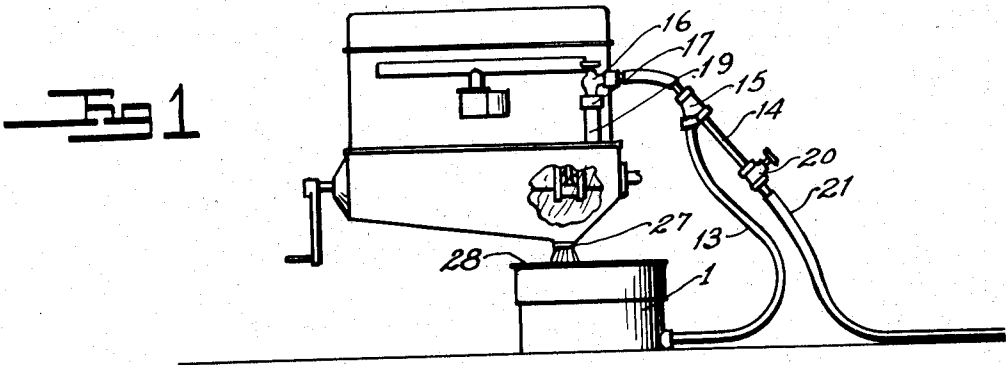
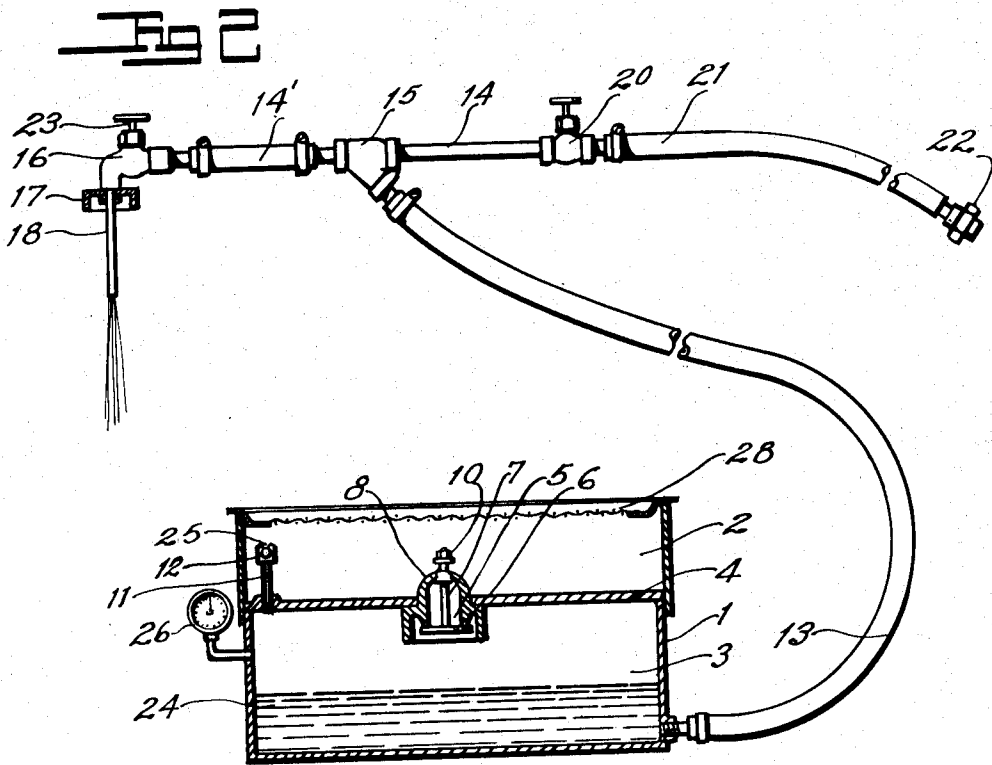


Aug. 25, 1931.

E. G. WOOLEY
MOTOR CLEANING MEANS
Filed July 29, 1929

1,820,552



INVENTOR
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UNITED STATES PATENT OFFICE

ERNEST G. WOOLEY, OF WICHITA, KANSAS, ASSIGNOR OF FORTY-FIVE ONE-HUNDREDTHS TO CARL A. NATH AND TEN ONE-HUNDREDTHS TO JULIUS L. LORENZEN, BOTH OF WICHITA, KANSAS

MOTOR CLEANING MEANS

Application filed July 29, 1929. Serial No. 381,988.

This invention relates to means for cleaning motors and particularly to means for cleaning the inside of internal combustion engines. Prior to my invention, it has been the practice to clean an internal combustion engine by draining the crank case, then, flowing kerosene or similar oil through the motor and draining it to wash out any particles such as dirt, dust or metal which may have accumulated within the motor. Such methods depended wholly upon the gravity flow of the oil which was not enough to dislodge all of the dirt within the motor.

My invention contemplates the provision of means whereby the cleaning fluid can be forced into and through the motor under pressure with sufficient force to dislodge any dirt or objectionable matter so that it can be carried off by the liquid as it flows through the crank case drain.

The novelty of the invention will be apparent by reference to the following description in connection with the accompanying drawings in which:

Fig. 1 is an elevational view of a motor to which my invention is applied and

Fig. 2 is a view of the cleaning device partly in elevation and partly in section.

In carrying out my invention I may employ a liquid container or tank 1 divided into an upper compartment 2 and a lower compartment 3 by a horizontal partition 4. Within the partition 4 is an orifice 5 normally closed by a valve 6 having a stem 7 projecting through a spider 8 so that the valve 6 will normally be closed.

The partition also carried an air vent pipe 11 with a check valve 12 therein. Leading from the compartment 3 is a flexible conduit 13 connected to a pipe 14 by a union 15. On one side of the union is a valved nozzle 16 carrying a cap 17 so that when the discharge end 18 of the nozzle is introduced into the filler pipe 19 of the engine, the cap will effect a substantial seal. In the pipe 14 on the opposite side of the union 15 is a valve 20 to which an air hose 21 is connected, provided at one end with a union 22 by means of which it may be fastened to a suitable source of air supply.

When the device is to be put in use, the compartment or chamber 3 will be partially filled with liquid, for example, oil. The oil may be introduced from chamber 2 through the opening 5. The valve 23 of nozzle 16 will be closed. The hose 21 will be connected to the air supply. The valve 20 will be opened, permitting air to flow from the source of air supply through hose 21, through valve 20, through pipe 14, hose 13 to put the liquid 24 in chamber 3 under pressure. During this time, the check valve 12 will be seated on seat 25 and the valve 6 will close the port or opening 5. When sufficient pressure is in the chamber 3 as indicated by the air gage 26, the valve 20 will be closed. The nozzle will now be introduced into the breather or inlet pipe 19 of the motor. The tank 1 will be immediately under the drain opening 27 of the motor and the valve 23 may be opened. The air pressure in chamber 3 will force the liquid through the hose 13, through pipe 14 and since valve 20 is closed and valve 23 opened, the liquid will discharge into the motor with sufficient force to dislodge any particles adhering to any part thereof and as the liquid drains from the drain 27 into the chamber 2, the particles will be carried with it. If desired, a screen 28 may be set upon the upper edge of chamber 2 to separate the particles from the oil. Then, the operator can push down on stem 7 to let the oil drain into chamber 3 so that it can be used over again.

From the foregoing it will be apparent that the motor can be efficiently flushed by oil under pressure so that any particles of foreign matter can be washed out of the motor in an expeditious and efficient manner.

Attention is also called to the fact that the device is adapted for uses other than cleaning motors among which may be named transmissions and differentials so I do not wish to be limited to any particular use for my invention.

What I claim and desire to secure by Letters Patent is:—

1. A device of the class described comprising a tank having a horizontal valved partition dividing the tank into an upper and lower compartment, the valve being seated

by pressure within the lower compartment, a conduit connected to the lower compartment having an air inlet branch to supply air to the lower compartment to put liquid therein under pressure and a liquid outlet branch and valves in the respective branches so that the air supply to the lower compartment may be cut off and the liquid may be permitted to flow from the lower compartment through the outlet branch.

2. A device of the class described comprising a tank having a horizontal valved partition dividing the tank into an upper and lower compartment, the valve being seated by pressure within the lower compartment, a conduit connected to the lower compartment having an air inlet branch to supply air to the lower compartment to put liquid therein under pressure and a liquid outlet branch and valves in the respective branches so that communication between the air inlet branch and the lower compartment may be cut off and a flow of liquid under pressure can be established from the lower compartment through the liquid outlet branch, the upper compartment of the tank being open to receive liquid and discharge it into the lower compartment by gravity through the valved partition.

3. A device of the class described comprising a tank having a horizontal valved partition dividing the tank into an upper and lower compartment, the valve being seated by pressure within the lower compartment, a conduit connected to the lower compartment having an air inlet branch to supply air to the lower compartment to put liquid therein under pressure and a liquid outlet branch, valves in the respective branches to permit the air supply to the lower compartment to be cut off and to permit liquid to flow from the lower compartment through the liquid outlet branch under pressure and to cut off the flow of liquid through the outlet branch while air is flowing into the lower compartment and a valved conduit communicating the lower compartment of the tank with atmosphere.

4. A device of the class described comprising a tank having a partition dividing the tank into an upper and lower compartment, a valve in the partition normally unseated by gravity but adapted to close under pressure in the lower compartment, a conduit communicating with the lower compartment, an air hose connected to the conduit to supply air to the lower compartment to put liquid therein under pressure, an air and liquid discharge conduit connected to the first named conduit, a valve in the air hose to establish communication between the air supply and the lower compartment, a valve in the liquid discharge conduit to permit liquid to flow through the conduit when the valve in the air hose is closed and a nozzle on the end of the discharge conduit.

5. A device for cleaning motors comprising a casing having an upper drain compartment and a lower liquid-receiving compartment, a valved partition dividing the two compartments, an air hose having a valve therein, a conduit connecting the air hose at a point beyond the valve with the lower compartment and a valved nozzle connected to the conduit so that air can be admitted through the air hose into the lower compartment when the valve in the nozzle is closed to put liquid in the compartment under pressure, the valve in the nozzle being adapted to be unseated when the valve in the air hose is closed so that liquid under pressure will flow back through the conduit out through the nozzle.

In testimony whereof I affix my signature.
ERNEST G. WOOLEY.