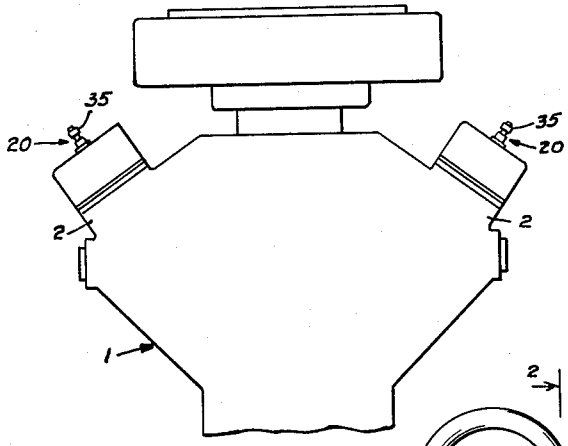
July 14, 1964 J. V. RASSUSHIN 3,140,699

METHOD FOR REMOVING SEDIMENT FROM ROCKER ARM SHAFTS IN GASOLINE ENGINES AND A DEVICE FOR FACILITATING THE SAME

Filed Feb. 10, 1964

Fig. 1.



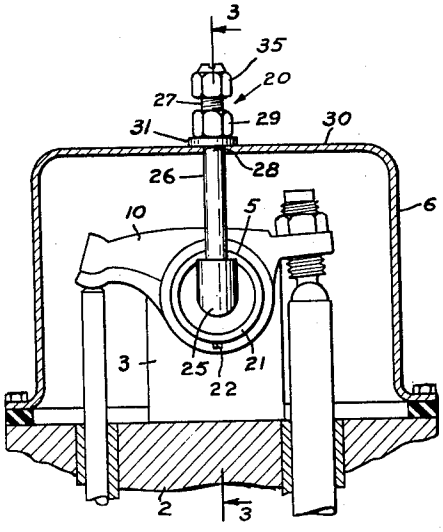


Fig. 2.

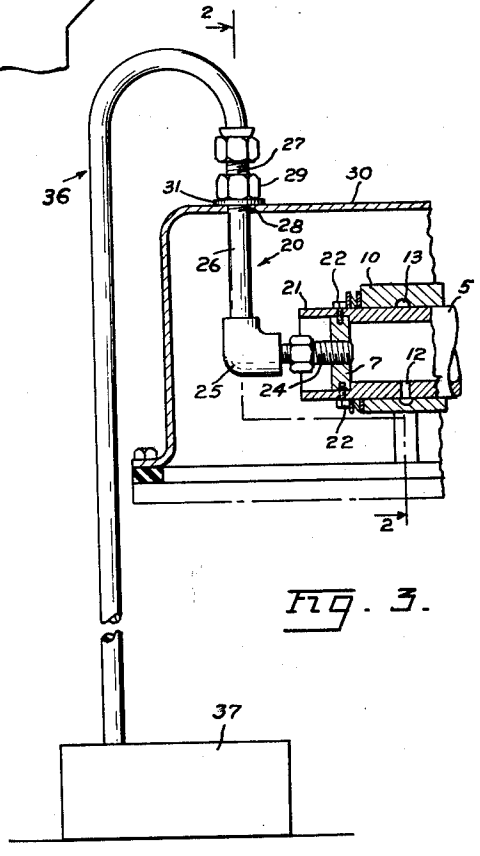


Fig. 3.

INVENTOR.
JERRY V. RASSUSHIN
BY Alexander Riaboff
ATTORNEY

United States Patent Office 3,140,699 Patented July 14, 1964

3,140,699

METHOD FOR REMOVING SEDIMENT FROM ROCKER ARM SHAFTS IN GASOLINE ENGINES AND A DEVICE FOR FACILITATING THE SAME

Jerry V. Rassushin, 1695 43rd Ave.,
San Francisco, Calif.

Filed Feb. 10, 1964, Ser. No. 343,860
6 Claims. (Cl. 123—90)

This invention relates to a new and simple method for removing sediment accumulating in rocker arm shafts in gasoline engines and to a device for facilitating such removal.

A rocker arm shaft in gasoline engines or the like consists of a closed tube provided with an opening under each of the rocker arm bearings carried by said shaft. Lubricating oil, forced by the oil pump, flows under a pressure from said pump through a passage in the engine into the rocker arm shaft and is discharged therefrom through said openings onto the rocker arm-bearings, thus lubricating the same.

During the operation of the engine, carbon deposits, sludge and dirt gradually accumulate in said shaft and passage and eventually restrict the flow of oil therethrough and finally close the same, thus cutting off the lubrication of said rocker arm bearings. In order to restore the lubrication of said bearings, it is necessary to take the rocker arm shaft assembly apart, clean the same, which is a time consuming job, and possibly to replace some of the parts in the same.

The principal object of this invention is to provide a new and simple method of cleaning regularly the rocker arm shafts of gasoline engines without taking said shafts out of the engines, and thus preventing the dangerous accumulation of said dirt, sludge and carbon deposits therein.

Another object of this invention is to provide a novel, simple and inexpensive means which permits cleaning the rocker arm shafts at any time without taking apart the rocker arm shaft assemblies.

Still another object of this invention is to provide a simple and inexpensive device for the above stated purpose, which may be easily installed on any existing engine.

Other objects and advantages will appear as the specification proceeds and the novel features of the device will be particularly pointed out in the claims hereto annexed.

My invention is illustrated in a drawing, forming a part of this specification, in which:

FIG. 1 is a partial diagrammatic end view of a gasoline engine with the herein described device installed.

FIG. 2 is an enlarged vertical cross-section through a cylinder head taken along the line 2—2 of FIG. 3, and

FIG. 3 is an enlarged vertical cross-section taken along the line 3—3 of FIG. 1 showing the device with a cap removed and a tube attached instead of said cap connecting said device with an oil pan.

In detail, a gasoline engine **1**, shown in the drawing, includes a cylinder head **2**, carrying mounting blocks **3** in which a stationary rocker arm shaft **5** is secured. The cylinder head **2** is enclosed by a cover **6**.

The shaft **5** is a hollow tube and has its both ends hermetically closed by disks **7** which are held in place by cotter pins, or screws, or the like.

The shaft **5** rotatably carries a plurality of rocker arms **10** arranged in spaced relation one to another. The contacting surfaces of said shaft and arms are lubricated with oil passing from the oil pump through a passage in the engine into the shaft **5**, and therefrom through an opening **12** in said shaft under each of said rocker arms **10**. The bearing surface of the arm **10** is provided with a circular groove **13**, which facilitates the lubrication of said surface.

Steady flow of oil from the oil pump into the shaft **5**, brings dirt, sludge and carbon which gradually settle and accumulate in said shaft, diminishing the flow of oil therethrough and finally completely stopping the same, whereupon the lubrication of the rocker arms ceases. In order to clean the shaft **5**, it is necessary to dismantle the rocker arm shaft assembly, remove the shaft, open its ends and wash out, or blow out, the accumulated dirt and sediments therefrom, and to assemble and install the shaft and related parts in place.

The applicant found by experiments that it is possible to prevent the dangerous accumulation of dirt and sediments in the shaft **5** and the passage leading thereto by passing oil at regular intervals under the pressure of about 30 pounds through said shaft and permitting oil to escape freely from said shaft by opening one end thereof, whereby said dirt and sediments are washed out. It was also found out that it was advisable to wash out said shaft with each change of oil.

The washing out is done in the following manner:

After a new oil is put in the engine, a front end of the shaft **5** is opened by removing the disk **7** for passage of oil out. The engine is started and permitted to run at such speed as to build up oil pressure to approximately thirty pounds. The motor is kept running for a few minutes to allow about a pint of oil to pass through said shaft **5** and be discharged therefrom, preferably into a container. Thereupon the opened end of the shaft **5** is closed by inserting the disk **7** back into the front end.

The experiments proved, that the above described operation, repeated with each oil change, keeps the shaft and the passage leading thereto clear of sediments and dirt and, therefore, maintains proper lubrication of the rocker arms.

In order to facilitate the discharge of oil from an end of the shaft **5** a special means **20** are attached to said end, said means comprising the disk **7**, inserted in the front end **21** of said shaft **5**. The disk **7** is preferably held in place by screws **22** passing through the wall of the end **21**. The disk **7** has a threaded opening in the center thereof into which one end of a small threaded nipple **24** is screwed. The nipple **24** is connected to an L-shaped fitting **25** to which a large nipple **26** is secured, one end **27** of which passes through a hole **28** in the top **30** of the cover **6**. A washer **31**, held in place by a nut **29**, seals the hole **28**. The end **27** is normally closed by a cap **35**, as shown in FIGURES 1 and 2.

Whenever it is desired to clean the shaft **5**, the cap **35** is removed from the end **27** and a flexible hose **36** is secured in its place, said hose preferably extending to an oil pan **37**, and the device is ready for operation. New oil is put into the motor, the motor is started, and permitted to run to raise the oil pressure to about 30 pounds. The motor is kept running until about a pint of oil is passed through said shaft and the device into the oil pan **37**. Thereupon, the motor is stopped, the hose **36** is disconnected from the end **27** and the cap **35** is returned to said end.

Having thus described this invention, I claim:

1. A method of cleaning a closed tubular rocker arm shaft in an engine having an oil pump and an oil passage from said pump to said shaft, said method comprising the following steps:

opening one end of the shaft;

replacing engine oil with a new oil;

starting the engine and raising the oil pressure to approximately 30 pounds;

holding said pressure for a few minutes for discharging through said open end about a pint of oil and thereby

washing sediments out of said shaft and passage; stopping the engine; and

closing the open end of the shaft.

2. A method of cleaning a closed tubular rocker arm shaft in an engine having an oil pump and an oil passage from said pump to said shaft, said method comprising the following steps:

opening one end of the shaft;

replacing engine oil with a new oil; starting the engine and running the same for a few minutes for discharging through said open end about a pint of oil,

thereby washing sediments out of said shaft and passage;

stopping the engine; and

closing the open end of the shaft.

3. A method of cleaning a closed tubular rocker arm shaft in an engine having an oil pump and an oil passage from said pump to said shaft, said method comprising the following steps:

opening one end of the shaft;

replacing engine oil with a new oil;

starting the engine and running the same for a few minutes for permitting oil to run through said passage and shaft, thereby washing sediments therein out of the same; stopping the engine; and

closing the open end of said shaft.

4. A device for facilitating washing out sediments from a closed tubular rocker arm shaft in an engine having an oil pump, an oil passage operatively connecting said pump with said shaft, and a cover enclosing said shaft and the rocker arms thereon, comprising

a means for forming a passage through one of said closed ends of said shaft, toward and through said cover,

a removable means for normally closing said passage; and

a hose for attaching to said first mentioned means instead of said second mentioned means for directing outwardly, oil forced by said pump through the engine oil passage, shaft, first mentioned means and hose, for washing out the sediments from said passage and shaft.

5. A device for facilitating washing out sediments from a closed tubular rocker arm shaft in an engine having an oil pump, an oil passage operatively connecting said pump with said shaft, and a cover enclosing said shaft and the rocker arms thereon, comprising

a tubular means forming a passage through one of said closed ends of said shaft and extending toward and through said cover;

a removable cap for normally closing said tubular means;

a hose for attaching to said tubular means instead of the cap for creating a continuous oil passage from said shaft beyond the engine's immediate vicinity, and preferably to a container, for directing oil forced by said pump through said engine oil passage, shaft, tubular means and hose into said container, thereby washing out the sediments from the engine oil passage and shaft.

6. A device for facilitating washing out sediments from a closed tubular rocker arm shaft in an engine having an oil pump, an oil passage operatively connecting said pump with said shaft, and a cover enclosing said shaft and the rocker arms thereon, comprising

a tubular means forming a passage through one of said closed ends of said shaft and extending toward and through said cover;

a removable cap for normally closing said tubular means;

a hose for attaching to said tubular means instead of the cap for forming a free passage from said shaft away from said engine and for permitting oil, under pressure created by the oil pump, to flow freely through said engine oil passage, shaft, tubular means and hose, thereby washing out the sediments accumulated in said passage and shaft.

References Cited in the file of this patent

UNITED STATES PATENTS

1,274,103	Story	July 30, 1918
1,464,069	Gerber	Aug. 7, 1923
1,624,497	McAllister	Apr. 12, 1927
3,008,544	Krizman	Nov. 14, 1961