

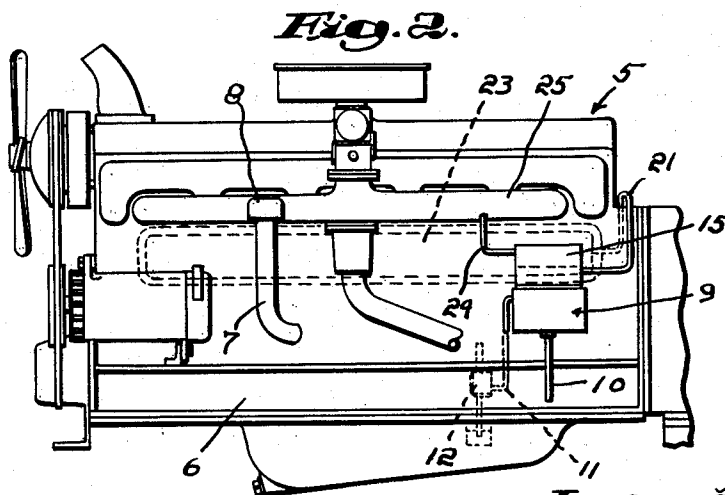
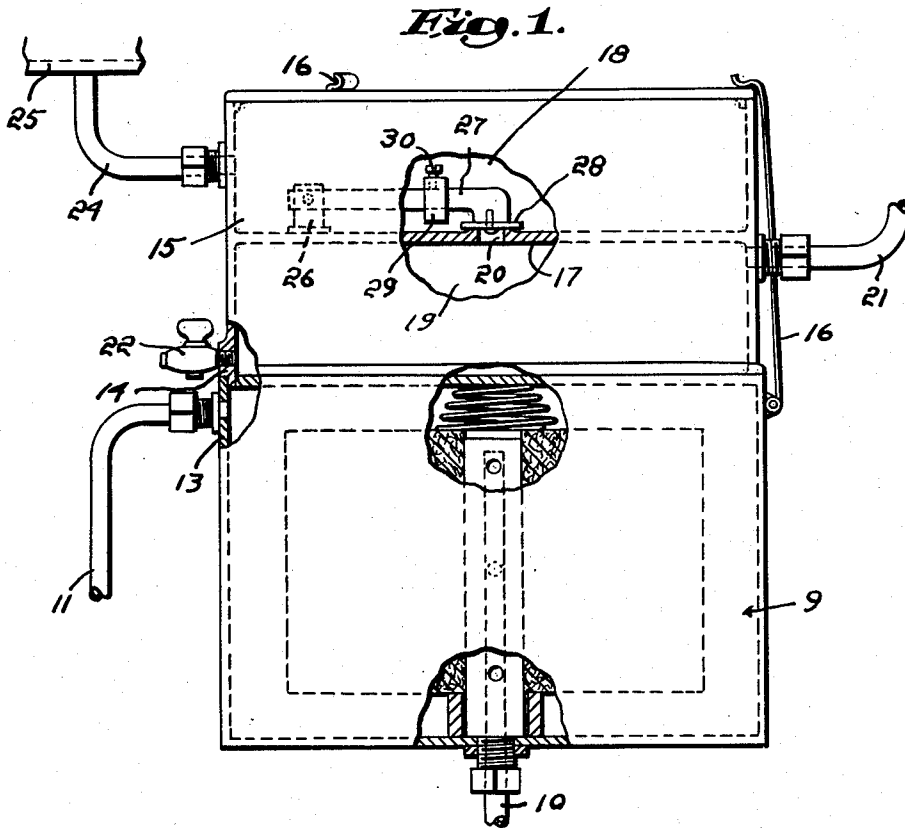
March 17, 1964

W. W. SCRIBNER

3,125,083

DEVICE FOR PREVENTING CONTAMINATION OF CRANK CASE OIL

Filed Aug. 11, 1960



Inventor:
Willard W. Scribner
by *Abbott Spear*
Attorney

1

3,125,083

DEVICE FOR PREVENTING CONTAMINATION OF CRANK CASE OIL

Willard W. Scribner, 931 Forest Ave., Portland, Maine
Filed Aug. 11, 1960, Ser. No. 49,071
6 Claims. (Cl. 123-119)

The present invention relates to the prevention of the contamination of the lubricating oil in engines of the type having lubricating oil contained in a crankcase.

While the present invention is adapted for use with any engine of the above type, it is herein discussed primarily in connection with motor vehicles. It is, of course, a common practice to equip automobile engines with oil filters. These effectively remove most solid contaminants but do not solve the problem of such contaminants as water, gases, blow-by products, and the like. While some of these are driven off as the vehicle is operated, they are regarded as the factor that limits the useful life of the lubricating oil.

The principal objective of the present invention is to provide a safeguard to minimize the admission into the lubricating oil of contaminants that are not filterable solids. In accordance with the invention, this objective is attained by providing a chamber having an inlet in communication with the interior of the engine above the oil level in the crankcase and desirably through a valve cover and an outlet connected to the intake manifold. The chamber is heated with the heat being derived from the engine and the chamber may be mounted directly on the oil filter to be heated by the oil circulating therethrough.

The chamber includes a partition dividing it into upper and lower compartments and having a port effecting communication therebetween. The upper compartment is connected to the intake system while the lower compartment is in communication with the interior of the engine. The port is controlled by a gravity operated valve adjustable to open when a predetermined suction is exerted thereon. In addition, a valve controlled drain enables any liquid accumulation in the lower chamber to be removed.

An engine provided with such means is well protected against having its oil contaminated. Best results are attained, however, when the crankcase has only filter protected air inlet or inlets. As the chamber preferably has a suction opened valve, the protective system is operative only when the engine is running and may be interrupted if intake suction is needed for the operation of other devices.

In the drawings, there is shown an illustrative embodiment of the invention from which these and other of its objectives, novel features, and the advantages will be readily apparent.

In the drawings:

FIG. 1 is a partly sectioned side elevation of a preferred type of chamber in accordance with the invention, and

FIG. 2 is a side view of an engine equipped with the chamber shown in FIG. 1.

A typical gasoline engine is generally indicated at 5 and it has its crankcase 6 provided with an inlet 7 having a filter cap 8 which is removable so that the inlet 7 may be used in filling the crankcase or adding oil thereto. An oil filter, generally indicated at 9 has an outlet conduit 10 to the crankcase and an intake 11 connected to the outlet side of the oil circulating pump 12.

The oil filter has a housing 13 whose upper rim serves as a seat for the shouldered bottom 14 of a chamber 15. The chamber 15 closes the housing 13 and is detachably locked thereto by a series of resilient clamping hooks 16.

The chamber 15 has a transverse partition 17 dividing it into an upper compartment 18 and a lower compartment 19 and provided with a port 20 effecting communication therebetween. The compartment 19 has a conduit

2

21 located close to the partition 17 and a drain valve 22. The conduit 21 is shown as connected to and opening through the valve cover 23 and the compartment 18 has a conduit 24 connected to and opening into the intake manifold 25. The partition 17 is also provided with a mount 26 pivotally supporting the arm 27 of a valve element 28 normally closing the port 20 but designed to be opened by intake suction. The arm 27 slidably supports a weight 29 that may be so adjusted that the valve element 27 opens when the intake pressure reaches a predetermined value and locked in that selected position as by means of a set screw 30.

When the motor vehicle is in operation, the intake suction is effective to draw air with whatever potential oil contaminants it carries, from the interior of the engine. The air is heated by the engine and the contaminants are largely in gaseous state and are delivered into and through the chamber 15 into the intake. As the chamber derives heat from oil flowing through the oil filter 9 it functions to maintain the contaminants in their gaseous state. When the engine is not running, the port 20 is closed and the intake air pressure at which the valve element 28 is wanted is adjusted so that the use of other vacuum operated devices will not be interfered with.

I claim:

1. In combination with an internal combustion engine of the type having a crank case to contain its lubricating oil and provided with an air inlet, a chamber, means connecting said chamber to said engine to be heated thereby and including a partition dividing it into upper and lower compartments and having a port effecting communication therebetween, said upper compartment having a port for connection to the air intake of said engine, said lower compartment having a port for connection with the interior of the engine in a zone above the oil level in the crank case, a drain for said lower compartment, and a valve mounted in said upper compartment and normally closing said port but opened in response to intake suction.

2. In combination with an internal combustion engine of the type having a crank case to contain its lubricating oil and provided with an air inlet, a chamber, means connecting said chamber to said engine to be heated thereby and including a partition dividing it into upper and lower compartments and having a port effecting communication therebetween, said upper compartment having a port for connection to the air intake of said engine, said lower compartment having a port for connection with the interior of the engine in a zone above the oil level in the crank case, a valve controlled drain for said lower compartment and a valve mounted in said upper compartment and normally closing said port but opened in response to intake suction.

3. In combination with an internal combustion engine of the type having a crank case to contain its lubricating oil, means to be heated by said engine and having a port for connection to the air intake of said engine and a port for connection with the interior of the engine in a zone above the oil level in the crank case, a valve normally blocking flow between said ports but opened in response to intake suction, and a drain before said valve and said last named port.

4. In combination with an internal combustion engine of the type having a crank case to contain its lubricating oil and including an air inlet means to be heated by said engine and having a port for connection to the air intake of said engine and a port for connection with the interior of the engine in a zone above the oil level in the crank case and a valve normally blocking flow between said ports, but opened in response to intake suction, and a valve controlled drain for said means.

5. In combination with an internal combustion engine of the type having a crank case to contain its lubricating

3

oil, a chamber including a partition dividing it into upper and lower compartments and having a port effecting communication therebetween, said upper compartment having a port connected to the air intake of said engine and said lower compartment having a port connected to the interior of the engine above the oil level in the crank case, drain means for said lower compartment and a valve mounted in said upper compartment normally closing said port but opened in response to suction, and means to heat said chamber and utilizing heat attendant the operation of said engine.

6. In combination with an internal combustion engine of the type having a crank case to contain its lubricating oil, a chamber including a partition dividing it into upper and lower compartments and having a port effecting communication therebetween, said upper compartment having a port connected to the air intake of said engine and said lower compartment having a port connected to the interior of the engine above the oil level in the crank

4

case, and drain means in communication with said lower compartment and a valve mounted in said upper compartment normally closing said port but opened in response to suction, means in control of said valve to vary its action in response to suction, and means to heat said chamber and utilizing heat attendant the operation of said engine.

References Cited in the file of this patent

UNITED STATES PATENTS

1,000,719	Cram	Aug. 15, 1911
1,524,540	Dawdy	Jan. 27, 1925
2,274,132	Ehlers	Feb. 24, 1942
2,386,765	Adams et al.	Oct. 16, 1945
2,686,504	Hill	Aug. 17, 1954
2,765,259	Schwalge	Oct. 2, 1956

FOREIGN PATENTS

11,352	Netherlands	Dec. 15, 1923
--------	-------------	---------------