Feb. 16, 1943. A. C. DRESSLER 2,311,036

ENGINE BREATHER AND VENTILATING SYSTEM

Filed May 27, 1940 3 Sheets-Sheet 1

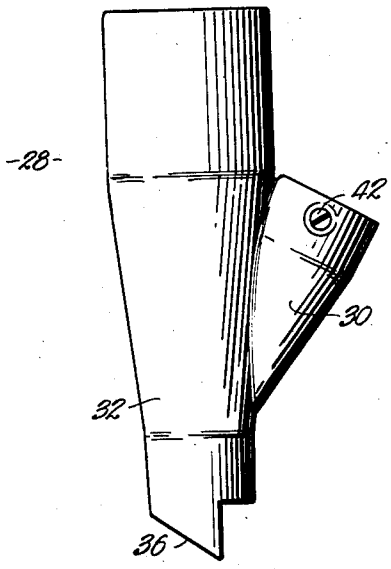


Fig. 1.

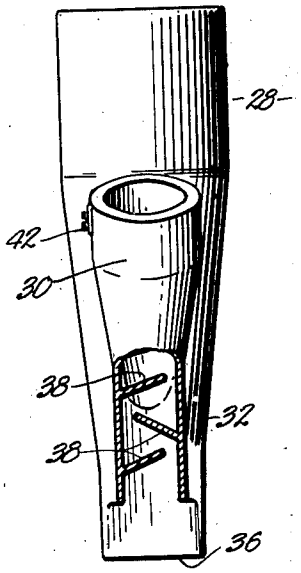


Fig. 2.

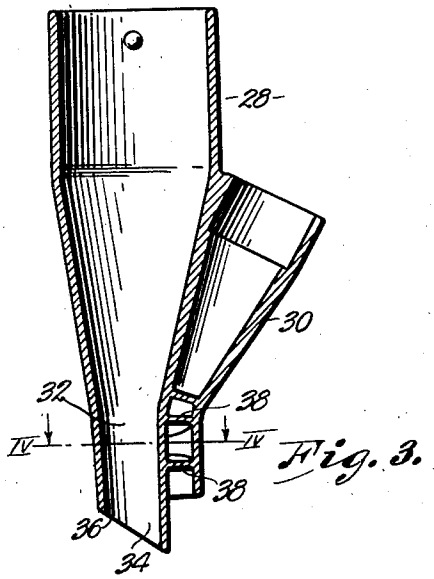


Fig. 3.

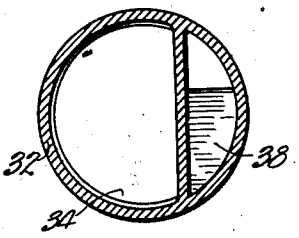


Fig. 4.

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ENGINE BREATHER AND VENTILATING SYSTEM

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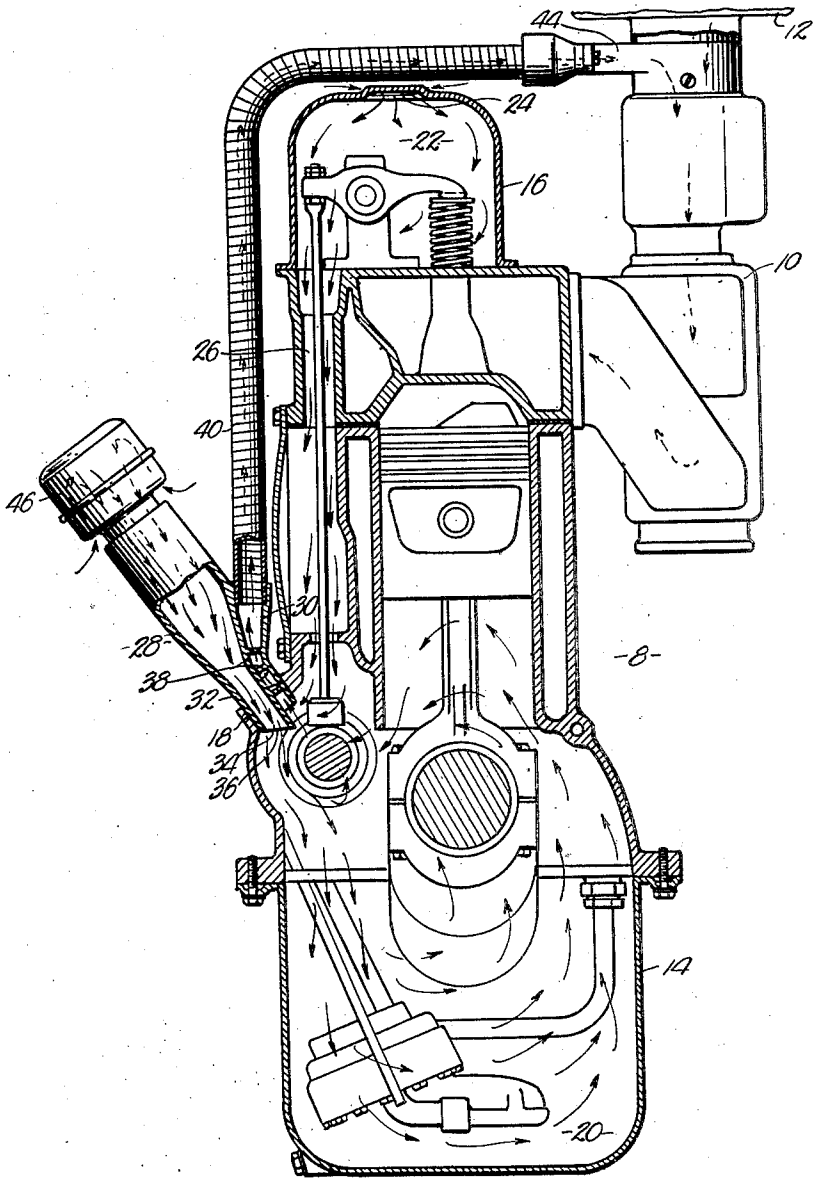


Fig. 5.

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ENGINE BREATHER AND VENTILATING SYSTEM

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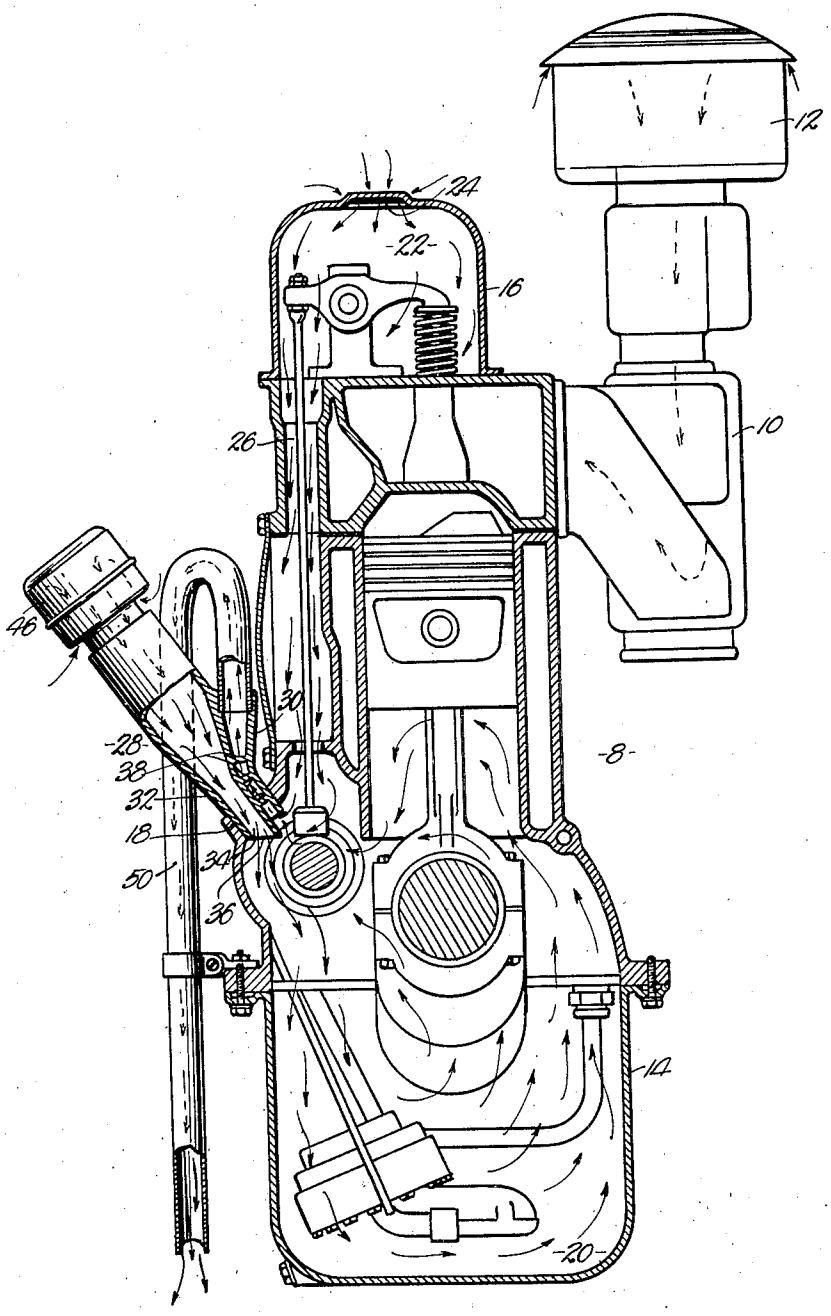


Fig. 6.

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UNITED STATES PATENT OFFICE

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ENGINE BREATHER AND VENTILATING SYSTEM

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Application May 27, 1940, Serial No. 337,409

3 Claims. (Cl. 121—194)

This invention relates to internal combustion engines and apparatus combinable therewith which serves to ventilate the crank case chamber and associated cavities of the engine.

The primary object of the instant invention is to provide apparatus of the aforementioned character which serves to establish effective currents of air within the crank case of the engine and that may be utilized as means for introducing oil to the crank case as well as for separating entrained particles and returning the same to the crank case, prior to their complete escape therefrom.

One of the important objects of this invention is to provide in an engine breather and ventilating system a specially formed body, the nature of which permits the passage of air to the crank case chamber and the evacuation therefrom of warm air, which has previously served as a ventilating and cooling medium.

Another object of this invention is to provide a body for engine breather systems, which body has a hollow extension integral therewith, the end of said extension being in offset relation to one end of the hollow body so that air may be introduced into the crank case chamber at a point lower than the end of the extension through which air is removed from the crank case chamber.

Other objects of the invention including details of construction and manner of combining the parts of the system with the conventional type of internal combustion engine, will appear during the course of the following specification, referring to the accompanying drawings wherein

Figure 1 is a side elevational view of the hollow body made in accordance with the present invention and forming a part of the engine breather and ventilating system.

Fig. 2 is another side elevational view of the hollow body, parts being broken away for clearness.

Fig. 3 is a longitudinal central sectional view through the body.

Fig. 4 is an enlarged transverse cross sectional view through the body taken on line IV—IV of Fig. 3.

Fig. 5 is a vertical cross sectional view through an internal combustion engine showing the parts of an engine breather and ventilating system, embodying this invention, in the operative position; and

Fig. 6 is a vertical cross sectional view through an engine having a breather and ventilating system associated therewith, made in accordance with a modified form of the invention.

The internal combustion engine with which apparatus contemplated may be associated, is generally designated by the numeral 8 and has as a part thereof, a carburetor 10, air filter 12, crank case 14, hood 16, and breather opening 18.

Crank case 14 has a chamber 20 therein, hood 16 has a chamber 22 therein in communication with a series of louvers 24 formed through the top of hood 16, and valve chamber 26 is in communication with chambers 20 and 22.

Breather opening 18 is usually employed to introduce oil into crank case 14 and in some instances, forms a part of a vent for chamber 20 because of the ability of certain elements, not here shown, to withdraw air from within the crank case.

So far as I am aware, no body forming a part of a breather and ventilating system, in the nature of that shown in the drawings, has heretofore been employed to both introduce fresh air into the various chambers of the engine and to simultaneously withdraw air so that a complete and efficient circulation is established.

The hollow body, generally designated by the numeral 28, should be cast and provided with a hollow extension 30 that projects outwardly and upwardly from a relatively narrow neck portion 32, forming a part of body 28. Neck 32 terminates at a mouth 34 normally disposed within chamber 20 when hollow body 28 is in the operative position.

The angle of inclination of hollow body 28 is determined by the similar angle of breather opening 18 and since such angle is substantially as illustrated in Fig. 5, it is important that the end 36 of body 28 be inclined with respect to the longitudinal axis of hollow body 28 so that the edge of neck 32, forming mouth 34, will lie in a substantially horizontal plane when body 28 is positioned.

Extension 30 has a length thereof lying beside neck portion 32 of body 28. This portion of extension 30 is reduced in cross sectional area and has therein a series of baffles 38 arranged as shown in Figs. 2 to 4 inclusive.

This arrangement of baffles 38 establishes a serpentine path for air passing out through extension 30 in the direction of the arrows shown in Fig. 5, and if the air stream has entrained particles, the same will impinge upon the upwardly and inwardly inclined lower surfaces of baffles 38. Any oil adhering to these lower sur-

faces will flow by gravity back into cavity of crank case 14.

The angularity of extension 30 is such with respect to the longitudinal axis of body 28 as to dispose the axis of said extension 30 in a vertical line, whereby the flexible conduit 40 may be conveniently joined, as seen in Fig. 5. One end of conduit 40 is secured to extension 30 by set screw 42, while the other end thereof connects with head 44 intermediate filter 12 and carburetor 10. Thus, air removed from the crank case will be introduced into the air stream passing to carburetor 10 and any evolved vapors will be carried back to the cylinders of engine 8 and from there be evacuated through the exhaust pipe.

The filter unit 46 is removably secured to the free end of hollow body 28. When oil is to be introduced into chamber 20, this unit 46 is removed for it serves as a cap.

In the modified form of the invention, illustrated in Fig. 6, a pipe 50 is in connection with extension 30 and projects downwardly to a point beneath the pan on the automobile for example, where a suction is established because of the forward movement of the car. Instead of the evacuated air reaching carburetor 10, it is released to the atmosphere through the open end of pipe 50. Body 28 remains the same in both forms of the invention, and unless an unusual strain is imparted to the elements of the system, body 28 will remain in the anchored position because the outer surface of the end of body 28, which is introduced into breather opening 13, is slightly tapered and the desired drive fit lends the required rigidity.

Reference to the arrows in Figs. 5 and 6 readily teaches the manner in which air enters all of the aforesaid chambers of engine 8, and especially the manner in which air enters louvers 24 and passes down through valve chamber 26 to a point of evacuation at the inner end of extension 30. No pocketing of the air can occur where a certain amount thereof is taken in through hollow body 28, for as suction is created outwardly through extension 30, air will enter through body 28 and be distributed, not only throughout chamber 20, but into lower portions of the cylinders of the engine.

The unitary nature of the body 28 renders it cheap to manufacture, easy to install, and free from maintenance expense.

Having thus described the invention, what is claimed as new and desired to be secured by Letters Patent is:

1. In an engine breather and ventilating system, a unitary structure comprising a hollow body adapted to have one end inserted into the breather opening of the engine, a hollow extension adjacent the body projecting laterally outwardly from the side thereof and having one end terminating in spaced relation from said one end of the body and within the breather opening at the top thereof, and a series of upwardly and inwardly inclined baffles in the hollow extension arranged to present a serpentine path along a portion of the length of the extension.

2. In an engine breather and ventilating system, a unitary structure comprising a hollow body adapted to have one end inserted into the breather opening of the engine, a hollow extension adjacent the body projecting laterally outwardly from the side thereof and having one end terminating in spaced relation from said one end of the body and within the breather opening at the top thereof, and a series of upwardly and inwardly inclined baffles in the hollow extension arranged to present a serpentine path along a portion of the length of the extension, said body and the hollow extension thereon both progressively increasing in cross sectional area as the other ends thereof are approached.

3. In an engine breather and ventilating system, a unitary structure comprising a hollow body adapted to have one end inserted into the breather opening of the engine, a hollow extension adjacent the body projecting laterally outwardly from the side thereof and having one end terminating in spaced relation from said one end of the body and within the breather opening at the top thereof, and a series of upwardly and inwardly inclined baffles in the hollow extension arranged to present a serpentine path along a portion of the length of the extension, and means for reducing air pressure within the extension whereby gases at the top of the breather opening are drawn outwardly through the extension.

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