

April 15, 1924.

1,490,186

W. E. ROWE

DUSTPROOF BREATHER

Filed Jan. 6, 1922

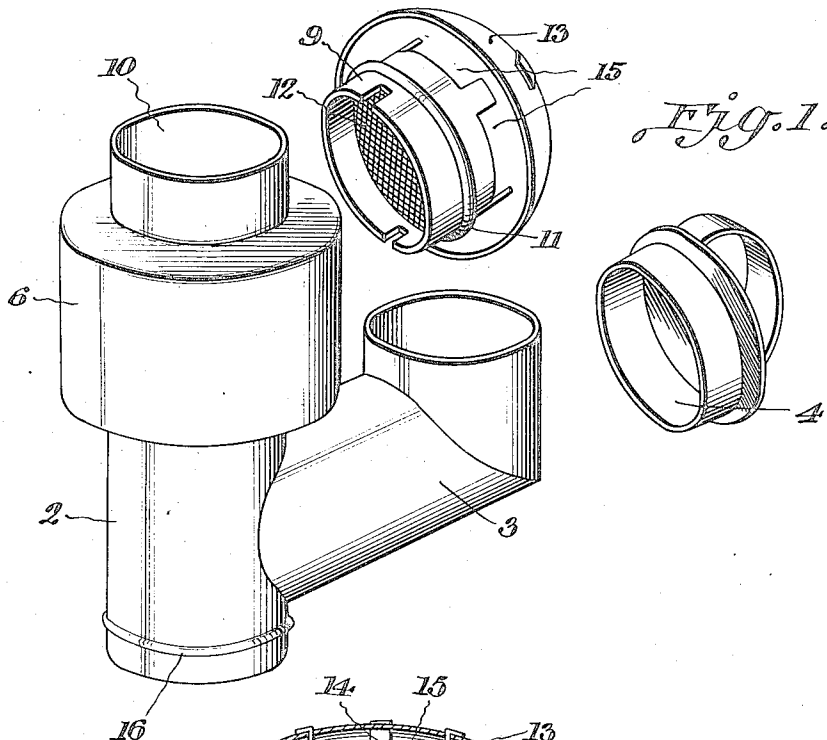


Fig. 1.

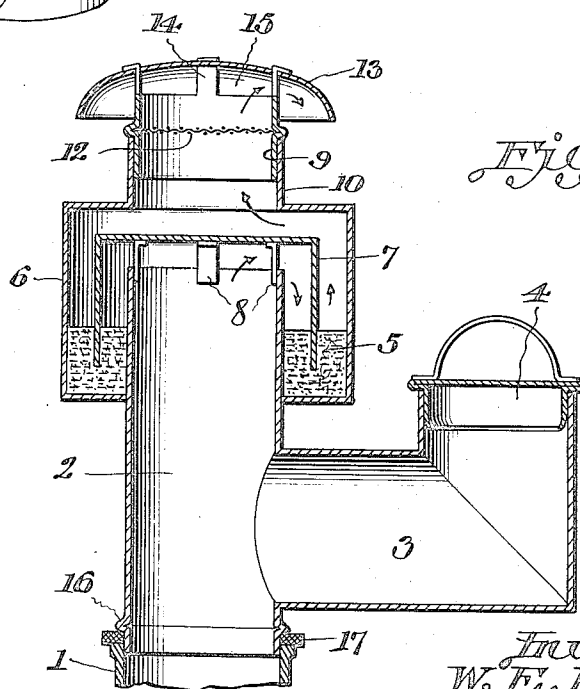


Fig. 2.

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UNITED STATES PATENT OFFICE.

WALTER EDDIE ROWE, OF FLORENCE, KANSAS.

DUSTPROOF BREATHER.

Application filed January 6, 1922. Serial No. 527,386.

To all whom it may concern:

Be it known that I, WALTER EDDIE ROWE, a citizen of the United States, residing at Florence, in the county of Marion and State of Kansas, have invented certain new and useful Improvements in Dustproof Breathers, of which the following is a full, clear, and exact description.

In internal engines of the inclosed crank type, there is usually a continual alternating pressure and vacuum in the crank case owing to the reciprocation of the parts contained therein. It is desirable to provide an opening in the crank case, which opening is covered by a removable cap. The constant inflow of air tends to draw in dust and dirt, which would be very detrimental to the moving parts therein.

An object of my invention is to provide means for maintaining a substantially uniform pressure within the crank case and at the same time prevent the entrance of any dust whatever.

Another object is to provide the breather pipe with simple means for supplying the crank case with lubricating oil that will not interfere with the other parts of the device.

Other objects will be apparent from the following description and appended claims.

In the drawings:—

Figure 1 is a perspective view of the device partially disassembled.

Figure 2 is a vertical section therethrough.

Attached to the crank case 1 in any suitable or desired manner is a pipe 2. A branch pipe 3 having an upper portion closed by a tightly fitting removable cap 4 provides means for supplying the crank case with lubricating oil.

Surrounding the pipe 2 and extending above the top thereof is a cylindrical member 6 having a bottom which is soldered or otherwise firmly secured to the pipe 2. This member forms a relatively large chamber around the pipe 2. Within this chamber is an inverted cup-shaped member 7 which is supported from the top of the pipe 2 by a plurality of lugs 8. This member 7 has its bottom out of contact with the pipe 2 forming air passages between the top of the pipe and bottom of the member and around the lugs 8. The lower edges are supported above the bottom of the cylindrical member 6. The lower part of the cylindrical member 6 is filled with oil, or other suitable liquid, forming a liquid seal 5.

The member 6 is closed on top except for a central upwardly extending neck portion 10 which is adapted to receive the breather cap proper. This cap has a tubular part 9 fitting closely within the neck 10 and is provided with a bead 11 to abut against the top of the portion 10. Said bead also forms means for holding a wire gauze disk 12 in place inside of the tubular portion 9.

The tubular part 9 has attached thereto in any desired manner a top portion 13, shown in the form of an inverted saucer. This may be attached to the part 9 by lugs 14 extending from the same through openings in the top 13, said lugs being bent down on the outside. This not only forms a quick and easy means for attaching the two parts but also provides the desired air exits. Any desired means may be employed for attaching these two parts provided provision is made for these air openings, which in the form shown are protected by the overhanging edges of the top 13.

Near its lower end the pipe 2 is provided with a bead 16 and a felt washer or dust ring 17 is placed between the bead 16 and the outer surface of the crank case 1.

It is obvious that this invention provides for the alternating pressure and vacuum obtaining within the crank case, but at the same time completely prevents the access of dirt of any kind to the interior of the case. The form and dimensions of the device may differ according to the exigencies of the situation. It is only necessary to make the parts of such size that at the time of the greatest vacuum in the crank case the liquid will not overflow the top of the pipe 2 into the crank case.

I claim as my invention:—

1. A breather for engine crank cases comprising a pipe communicating therewith, a casing about the upper portion of the pipe and extending above its top, an inverted cup-shaped member supported around said pipe within the casing and with its bottom out of contact with the top of the pipe, and a breather cap carried by the upper portion of said casing.

2. A breather for engine crank cases comprising a pipe communicating therewith, a casing surrounding the upper portion of the pipe, extending above the same and adapted to contain a liquid in its lower portion, a second casing closed at top and open at its bottom surrounding the pipe within the first

casing, having the closed end supported out of contact with the top of the pipe and its lower edge extending within said liquid, and a breather cap supported by the upper portion of the casing.

3. A breather for engine crank cases comprising a pipe communicating therewith, a casing surrounding the upper portion of the pipe having a closed bottom and an opening at its top, a second casing closed at its top and open at its bottom within the first casing and supported with its closed end out of engagement with said pipe, a liquid within the first casing into which the open end of the second casing dips, and a breather cap fitting within the opening in the top of the casing.

4. A breather for engine crank cases comprising a pipe communicating therewith, a casing closed except for an opening at the

top surrounding said pipe and having a liquid seal, a second casing supported by said pipe and having a closed top and an open bottom which dips into said seal, and a breather cap fitting within the opening at the top of the casing.

5. A breather for engine crank cases comprising a pipe communicating therewith, a casing surrounding the pipe at its upper portion, said casing having a closed lower end to contain a liquid seal, a second casing supported by said pipe and having a closed top and an open bottom which dips into said seal, a breather cap communicating with the top of the casing, and a branch filling pipe communicating with the breather pipe.

In testimony whereof, I have hereunto subscribed my name.

WALTER EDDIE ROWE.