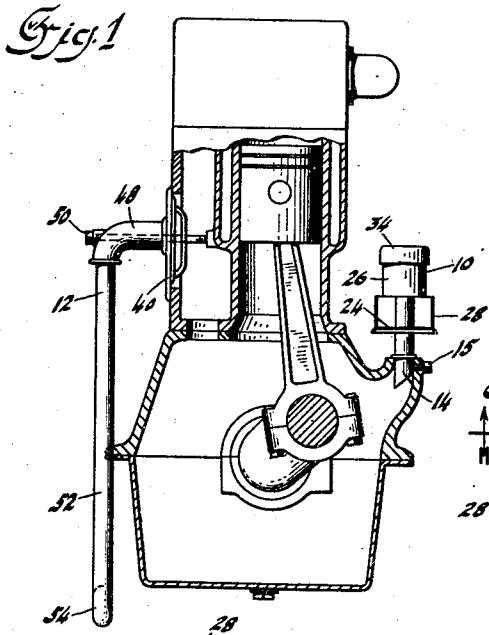
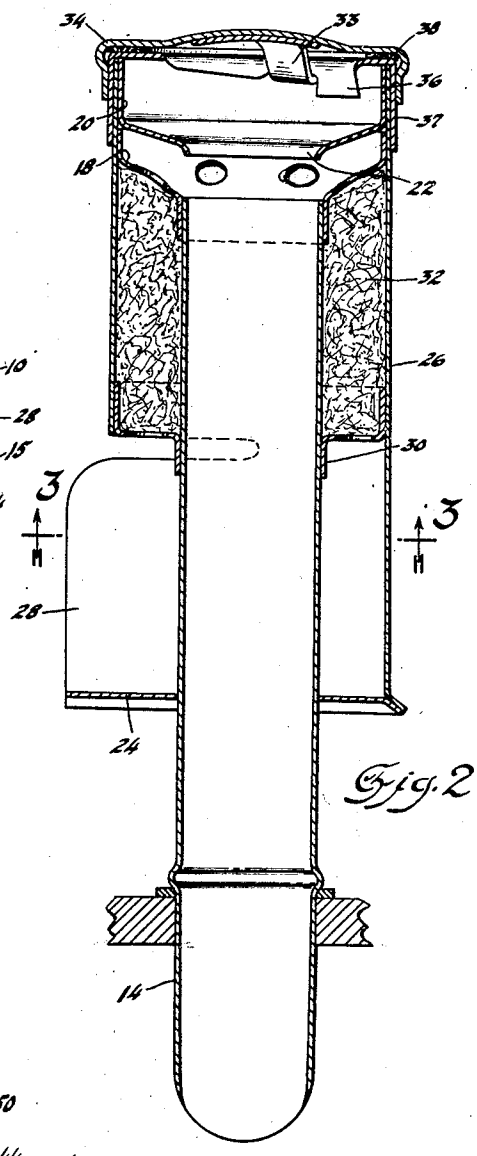
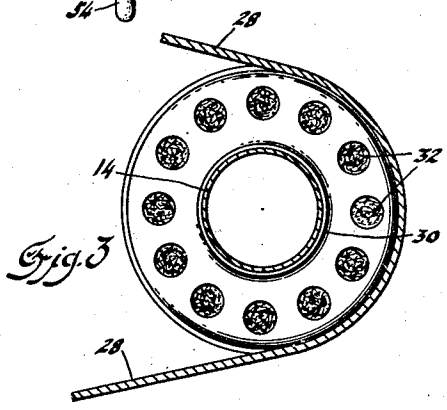
June 3, 1930. P. B. TAYLOR 1,761,944

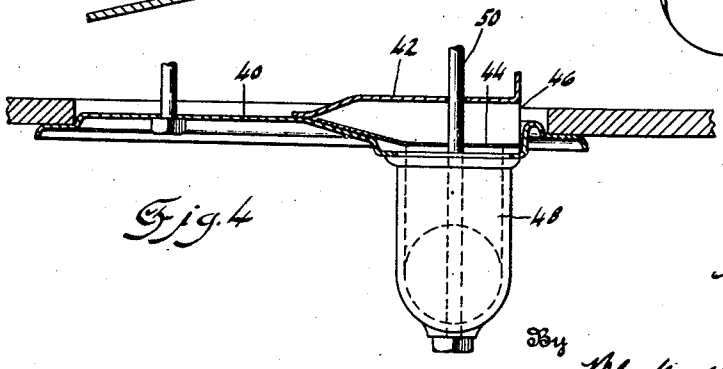
CRANKCASE VENTILATOR

Filed Sept. 26, 1927









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Patented June 3, 1930

1,761,944

UNITED STATES PATENT OFFICE

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CRANK-CASE VENTILATOR

Application filed September 26, 1927. Serial No. 222,124.

This invention relates to crankcase ventilation and has to do particularly with a combined oil feed pipe and crankcase ventilating means for the internal combustion engine of an automotive vehicle.

It is an object of this invention to provide a new and improved arrangement of pipes, one within another, for introducing oil into and for ventilating an engine crankcase. More specifically it is an object of this invention to associate an improved oil filler pipe or tube with protected means which acts to filter incoming air entering therethrough. It is an object of this invention to provide a steel wool filter for use with the oil filler tube so arranged that oil may be readily poured in without danger of splashing on the steel wool and destroying its filtering qualities. It is a further object of the invention to provide an outlet pipe which is provided with baffling means for preventing the escape of oil and which extends down below the dustpan so that the foul air will not escape into the body of the car.

Other objects and advantages of the invention will appear in the course of the following description, taken in connection with the accompanying drawings and appended claims.

In the drawings:

Figure 1 is a front view partly broken away of a conventional internal combustion engine embodying my invention.

Figure 2 is an enlarged sectional view of the oil filler tube.

Figure 3 is a section on the line 3—3 of Figure 2.

Figure 4 is a horizontal section showing the arrangement of the outlet pipe.

Referring to the drawing, I have illustrated in Figure 1 a conventional internal combustion engine provided on the left hand side with an oil filler pipe 10 and on the right hand side with an outlet pipe 12.

The filler pipe comprises a main cylindrical portion 14 adapted to fit in and be fixed by means of a set screw 15 in an aperture in the engine crankcase and is bevelled or cut off at an angle on its lower end. The purpose of bevelling the lower end of the pipe is to secure the benefit of the rotation of the crankshaft to produce an aspirating effect on the lower end of the pipe 10. On the upper end of the portion 14 of the filler pipe is secured a widened mouth element 18 and in this is fitted a funnel 20 provided with an inwardly extending portion 22 which forms an aperture slightly smaller than the portion 14 of the filler pipe, said funnel being thus held spaced from said pipe.

Surrounding the widened mouth 18 and funnel and portion 14 of the filler pipe and spaced from the lower end thereof by an annular plate 24 is shown an outer pipe or casing 26. To provide means for advancing air through this casing, the lower portion of the casing is split and flared out to provide wings 28 which open directly in the path of the blast of air from the fan. Just above the wings 28 is an angled partition 30 which supports a mass of steel wool 32 between the pipe 14 and casing 26, the partition 30 and inwardly extending portion of the widened mouth element 18 being perforated to allow the passage of air therethrough. A cap 34 fits over the top of the funnel 20 and is provided with opposed downwardly extending fingers 33 adapted to cooperate with flanges or cam surfaces 36 on the fastening member 37 fixed on top of the casing 26 for holding the cap in place. A gasket 38 is arranged within the cap 34 to make the cap substantially air tight.

On the right hand side of the engine is a valve cover plate 40 provided on its inner side with a polygonal baffle plate 42 which is spaced from the outlet aperture 44 and covers this aperture completely, a narrow opening 46 being provided between the cover 40 and baffle plate for allowing the passage of air out through an opening 44. Fixed over the aperture 44 is an outlet pipe, the elbow joint 48 of which is provided with a fastening bolt 50 extending through the valve cover. The vertical portion of the outlet pipe, which may be welded or soldered to the elbow joint 48, extends down through a hole in the dust pan and opens rearwardly, as shown at 54, for causing an aspirating effect on the pipe.

The operation of the device will now be described. As the blast from the fan is con-

verged by the wings 28, pressure is built up which causes a current of air to pass through the perforated partition 30, steel wool 32 and perforated partition of the widened mouth 18, down through the main portion 14 of the filler pipe, through the crankcase, and out through the valve cover 40 and outlet pipe 12. The passage of this current is aided by the aspirating effect on the lower end of the pipe 52 as described above. When the cap is removed and crankcase oil poured in, the funnel shown as secured within the outer pipe but as delivering into the inner pipe and as so spaced therefrom as to permit a passage of air therebetween, causes the oil to pass down through the part 14 of the filler pipe without getting into the steel wool. The baffle on the valve cover prevents the escape of oil through the outlet pipe.

I claim:

1. For use upon an internal combustion engine including a crankcase: a pipe fixed therein and provided with a perforated widened upper portion, a casing fitting about said widened portion spaced from a lower portion of said pipe, said lower portion being provided with an opening, filtering means between said casing and pipe, and a removable cap fixed over the upper end thereof.

2. For use upon an internal combustion engine including a crankcase: a pipe fixed therein and provided with a perforated widened upper portion, a casing fixed about said widened portion and spaced from said pipe, the lower portion of said casing being formed with a diverging opening, filtering means between said casing and pipe, and a removable cap fixed over the upper ends thereof.

3. An oil filler inlet comprising: a pipe having a perforated widened upper portion, a funnel in said upper portion and opening into said pipe, a casing about said upper part and spaced from the lower part thereof, said casing being provided with an opening in its lower part, filtering means between said casing and pipe, and a removable cap for said upper portion.

4. An oil filler inlet element provided with a perforated widened upper portion, a funnel interfitting within said upper portion and opening into said pipe, a casing extending below said upper part and spaced from the lower part, said lower part of said inlet element, a lower part of said casing being provided with means for advancing air therethrough, filtering means between said casing and pipe, and a removable cap for said upper portion.

5. In means for introducing oil and air into a crankcase: pipes disposed one within the other and respectively provided with means for directing oil and air thereto; means therebetween for filtering air; and means for protecting said filtering means from oil, one of said pipes being provided with aspirating means.

6. In means for introducing oil and air into a crankcase: pipes disposed one within the other and respectively provided with means for directing oil and air thereto; means therebetween for filtering air; and means for protecting said filtering means from oil, said protecting means comprising a funnel fitting within said outer pipe but delivering into said inner pipe.

7. In means for introducing oil and air into a crankcase: pipes disposed one within the other and respectively provided with means for directing oil and air thereto; means therebetween for filtering air; and means for protecting said filtering means from oil, said protecting means comprising a funnel fitting within said outer pipe but delivering into said inner pipe, although so spaced therefrom as to permit passage of oil therebetween.

8. In means for introducing oil and air into a crankcase: pipes disposed one within the other and respectively provided with means for directing oil and air thereto; means therebetween for filtering air; and means for protecting said filtering means from oil, said pipes being held in spaced relationship by a widened mouth element extending above the inner pipe.

9. For use upon a crankcase, a combined oil inlet and air inlet organization comprising: pipes disposed one within another, means for retaining a filtering material within one of said pipes; and means for so guiding oil into the other of said pipes as to obviate contact of said filtering material therewith.

10. A combined oil inlet and ventilation air inlet organization for a crankcase comprising: an inner pipe for oil; an outer casing provided with forwardly open means to cause a current of air to pass through both said pipe and said casing; and air filtering means between said casing and pipe.

11. A combined oil inlet and ventilation air inlet organization for a crankcase comprising: an inner pipe for oil: and an outer casing provided with a forward opening and forwardly divergent wings to effect an advance of air therethrough; and filtering means confined above said opening and between said casing and pipe.

12. A combined oil inlet and ventilation air inlet organization for a crankcase comprising: an inner pipe for oil: and an outer casing provided with means to effect an advance of air up through the casing and down through the pipe; air filtering means between said casing and pipe; and a removable cap for said combined inlet.

13. A combined oil inlet and ventilation air inlet organization for a crankcase comprising: an inner inlet pipe for oil: and an outer casing provided with an inlet and with

means to guide air into the casing and then through said pipe,—said guidance means including side portions diverging forwardly; filtering means between said casing and pipe; and a removable cap for one of said inlets.

In testimony whereof I affix my signature.

PAUL B. TAYLOR.