

March 14, 1950

J. S. PATES

2,500,859

OIL FILLING AND BREATHER TUBE

Filed Nov. 22, 1948

FIG. 1

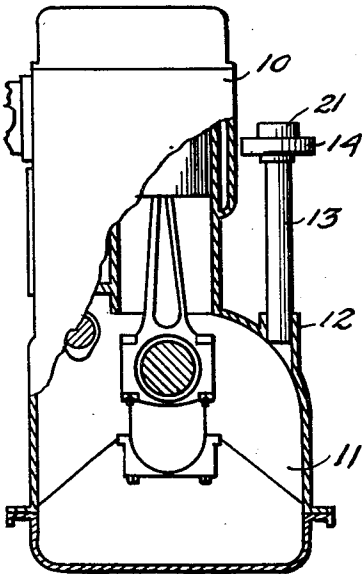


FIG. 2

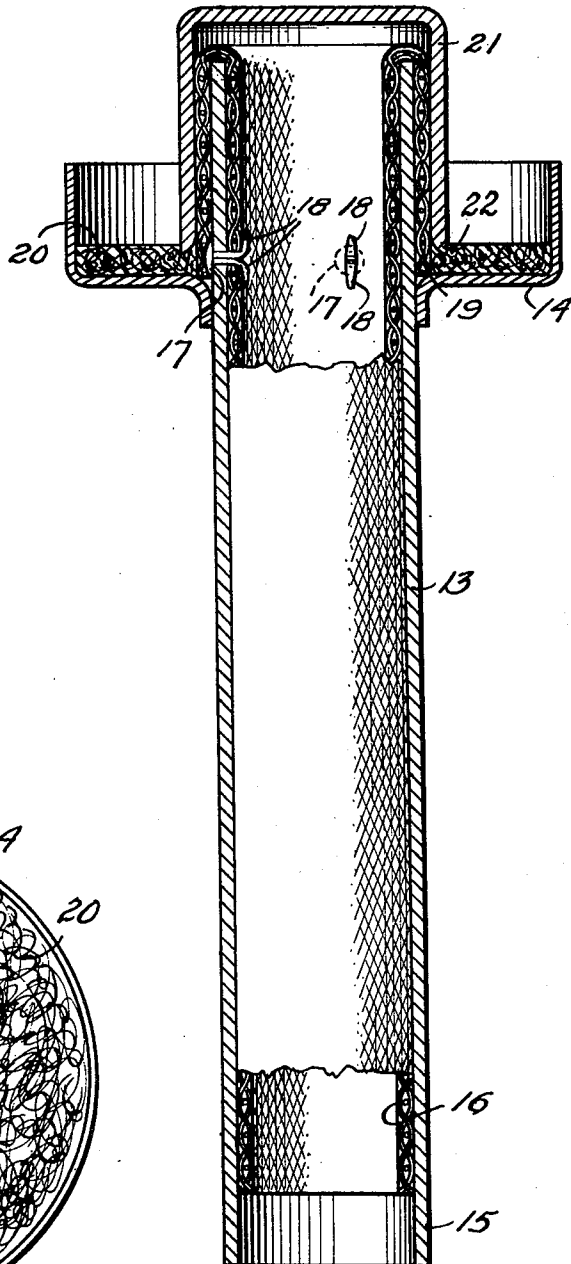
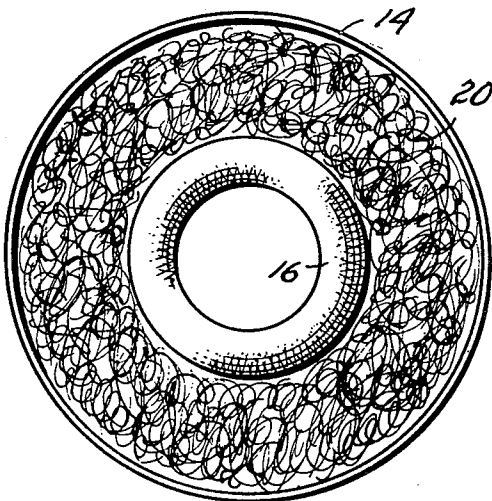


FIG. 3



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2,500,859

OIL FILLING AND BREATHER TUBE

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Application November 22, 1948, Serial No. 61,513

7 Claims. (Cl. 121—194)

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This invention relates to improvements in oil filling and breather tubes for automotive engines and the like. The splashing of oil through oil filling tubes is troublesome and even tubes provided with metal pans surrounding the tube for catching oil which may pass through the breather cap on the oil filling tubes does not prevent the oil in the pan from being blown therefrom and over the engine and other parts under the hood of the automobile.

My invention has for its principal object to overcome such trouble and actually save lubricating oil which otherwise is blown away by the breathing action of the engine and the blowing by the cooling fan. This is accomplished mainly by providing an oil filler with a pan surrounding its upper end under the filler cap and applying a tubular wick within the filler tube extending up over the upper end thereof and extending downwardly to cover the outer surface of the filler tube into the pan so that any oil splashed into the pan will be carried back into the filler tube and in this return process filtered of any dirt carried by the splashed oil or subjected to it in the pan from the exterior.

Further objects, advantages and details of my invention will appear in the following specification supplemented by the accompanying drawing illustrating the principal features thereof.

In the drawing:

Fig. 1 is an elevation view with parts broken away conventionally illustrating an automotive engine with an oil filler of the type to which my invention is applicable.

Fig. 2 illustrates the oil filler tube having an oil return wick in accordance with my invention, a loosely fitting breather cap therefor being conventionally shown.

Fig. 3 is a plan view thereof with the cap removed.

In general my invention is applicable to an automotive engine conventionally shown in Fig. 1 wherein the engine block 10 is broken away to illustrate the crank case 11 and the block is provided with an opening 12 for the reception of an oil filler and breather tube 13.

The oil filling tube 13 in accordance with my invention is provided with a cup or pan 14 surrounding it adjacent to its upper end, and the lower end of the tube is of the shape and size required to fit in the engine block filler tube opening 12. Tube 13 has a tubular wick 16 positioned therein so as to engage the inner walls thereof to a level below the bottom of pan 14, preferably well down into the tube, and the wick may be secured

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in such position by rivets or clips 17 positioned through apertures in tube 13 and the wick with the clip ends 18 bent into engagement with the wick. The upper end of wick 16 is inverted and drawn down over the upper end of tube 13 so as to terminate as shown at 19 in the bottom of cap or pan 14, whereby capillary action of the wick will draw oil from the pan and carry it back through the filling tube into the engine and filter it of impurities as it returns.

A felt mesh 20 or any other strainer may be positioned in the annular space in the bottom of pan 14 surrounding wick 16 to keep dirt from entering the crank case as air goes into the breather. This strainer may be removed and cleaned or replaced by a new strainer. Wick 16, likewise may be renewed though it is not subject to the dirt which is encountered by the strainer and therefore does not have to be changed as frequently.

Any conventional form of breather cap adapted to fit over the upper end of tube 13 and wick 16 may be employed though a loosely fitting cap 21 with its lower edge 22 engaging in the material 20 is illustrated and I have found to be satisfactory for the purpose. Though the double walled breather caps of conventional design afford a separate passageway for the air in the breather cap, the loose fitting cap 21 permits passages of air through interstices along the wick and overlying cap inner walls. Any form of conventional cap retaining means may be employed though frictional engagement with parts of the wick as shown provide simple retaining means therefore.

In operation, as stated, the capillary action of the wick 16 removes the oil from pan 14 substantially as fast as it is deposited in the breathing action and thereby prevents it from being blown over the engine, ignition wires and other parts. The long inner portion of wick 16 depending in tube 13 has a tendency to increase the flow of oil in the capillary action of the wick and also absorbs some of the oil from the vapors as they rise in the tube so that less oil is carried over into pan 14 during the breathing action than would be in the absence of the wick lining the inner walls of tube 13.

Tubular wick 16 is shown in engagement with the inner walls of filler tube 13, however in practice it is immaterial that the wick should be in tight engagement as a lining therefor as folds forming longitudinal ribs or otherwise, not shown may occur and baffle the ingress and egress of air during the breathing action of the engine. This may increase the absorptive property of the wick

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for oil from the engine vapors without interfering with the breathing action thereof or the filling of the crank case through the filling tube 13 when it is necessary to add or introduce new oil into the crank case.

Having described a highly satisfactory embodiment of my improved oil filling tube in detail it is to be understood that various modifications of my invention can be made within the scope of the following claims.

I claim:

1. An oil filling and breather device for automotive engines and the like comprising a tube with an upright upper end, a pan surrounding said tube adjacent to its upper end, a tubular wick extending down into said tube from its upper end and engaging the exterior surface thereof down into said pan, filter material in the annular space in said pan surrounding said tube and wick, and a breather cap over the upper end of said tube and wick with its lower portion engaging said filter material.

2. An oil filling and breather device for automotive engines and the like comprising a tube with an upright upper end, a pan surrounding said tube adjacent to its upper end, a tubular wick extending down into said tube from its upper end and engaging the exterior surface thereof down into said pan, and a breather cap over the upper end of said tube and wick with its lower portion within and adjacent to the bottom of said pan.

3. An oil filling and breather device for automotive engines and the like comprising a tube with an upright upper end, a pan surrounding said tube adjacent to its upper end, a tubular wick extending down into said tube from its upper end and engaging the exterior surface thereof down into said pan, clip means extending through the tube and wick securing the wick in place, and a breather cap over the upper end of said tube and wick with its lower portion within and adjacent to the bottom of said pan.

4. An oil filling and breather device for automotive engines and the like comprising a tube

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having an upright end portion, a pan surrounding said tube adjacent to its upper end, a disk of oil absorbent material upon the bottom of said pan, surrounding said tube, a wick in contact with said disk and extending into said tube and downwardly to a zone below the plane of said disk, and a breather cap over the upper end of said tube.

5. An oil filling and breather device for automotive engines and the like characterized by having a tubular wick extending downwardly within the tube from the upper end thereof to adjacent to the lower end thereof and substantially in engagement therewith.

6. An oil filling and breather device for automotive engines and the like characterized by having a tubular wick extending downwardly within the tube from the upper end thereof to adjacent to the lower end thereof and substantially in engagement therewith and downwardly for a short distance over the exterior surface of the tube.

7. An oil filling and breather device for automotive engines and the like characterized by having a tubular wick extending downwardly within the tube from the upper end thereof and substantially in engagement therewith and downwardly for a short distance over the exterior surface of the tube, an annular pan of cup formation surrounding said tube adjacent to the upper end of the tube with the lower end of the outer portion of the tubular wick substantially in engagement therewith, and a breather cap over the upper end of the tube and wick having its lower portion in and adjacent to the bottom of said pan.

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The following references are of record in the file of this patent:

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