July 6, 1926. 1,591,234

J. S. REID

CAP CLOSURE

Filed Sept. 25, 1922

Fig. 1

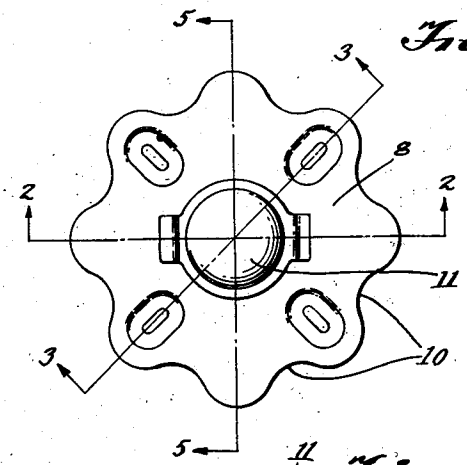


Fig. 4

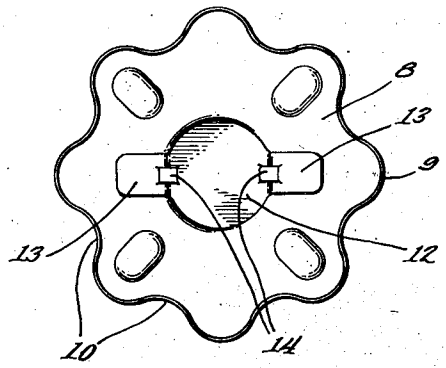


Fig. 2

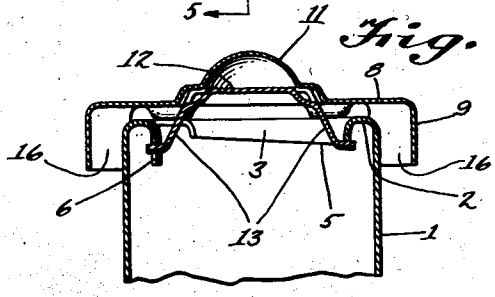


Fig. 5

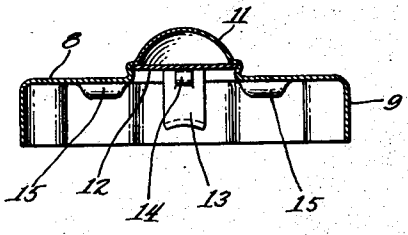


Fig. 6

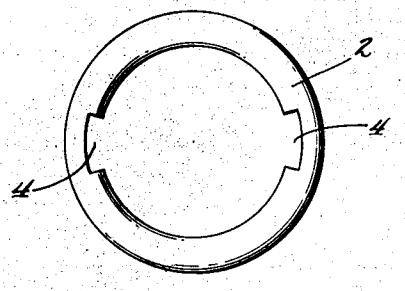
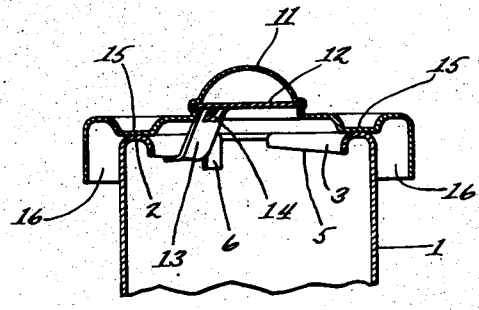


Fig. 3



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UNITED STATES PATENT OFFICE.

JAMES S. REID, OF CLEVELAND, OHIO, ASSIGNOR TO THE EASY-ON CAP COMPANY, OF CLEVELAND, OHIO, A CORPORATION OF OHIO.

CAP CLOSURE.

Application filed September 25, 1922. Serial No. 590,375.

This invention relates to cap closures, such as are used in connection with the breather pipes of motor vehicles, and in other places where it is necessary or desirable that air be enabled to readily pass therethrough.

The object of the invention is to provide an improved cap closure which readily permits the passage of air therethrough, but which effectively prevents the entrance of dirt and other objectionable objects or matter and which, when used in connection with an oil filling tube, minimizes the liability of the oil splashing out through the air passages; which closure is easily and quickly applied and locked in closing position; and which is strong and durable and simple in construction.

Further objects of the invention are in part obvious and in part will appear more in detail hereinafter.

In the drawing, which represents one suitable embodiment of the invention, Fig. 1 is a plan view of my improved cap closure; Figs. 2 and 3 are vertical sectional views thereof, taken on the lines 2—2 and 3—3, respectively; Fig. 4 is an inverted plan view of the cap member; Fig. 5 is a vertical sectional view thereof, taken on the line 5—5, Fig. 1; and Fig. 6 is a plan view of the tubular member.

Referring to the drawing, 1 represents the upper end portion of a breather pipe of a motor vehicle, which portion may be an integral part of the breather pipe structure, or a separate member suitably secured thereto. Said tubular portion 1 is provided at its upper end with an inwardly extending flange 2, and an inner, depending marginal flange 3, said flanges 2, 3 being provided at opposed points with recesses or cut out portions 4, two being shown, providing two substantially semicircular depending flanges. The lower or bottom edges of these depending flanges are inclined, so as to provide cam faces 5 for engagement by the locking spring of the cap member, as will later appear. Said cam faces are preferably provided with dwell portions (not shown) and with lugs or stop portions 6 for limiting the rotary movement of the cap member thereon.

The cap member comprises a substantially circular top portion 8 and a depending marginal flange or skirt 9 preferably corrugated so as to provide a series of finger recesses 10 for facilitating the turning of said cap member. Said corrugations also center the cap member upon the tubular member, which is particularly important in a closure of this type in which the fingers of the locking member must be passed through recesses or cut out portions in the tubular member, as will more fully appear. The top portion 8 of said cap member is provided with an upwardly extending central dome portion 11, in the chamber or recess of which is suitably secured, such as by a crimping operation, the substantially circular base portion 12 of a locking spring member. Said locking member is provided with two outwardly flaring finger portions 13, preferably provided with sheared portions 14 at the base thereof for bracing said finger portions and for distributing the strain to which said finger portions are subjected. The curved outer ends of said finger portions are adapted to engage the cam faces 5 of the tubular end portion 1, as before referred to. As thus far described, the present structure is substantially the same as that found in my co-pending application for cap closure, filed March 3, 1922, Serial Number 540,749, to which reference may be had for a fuller understanding of the same.

In the present structure, the top portion 8 of the cap member is provided with a plurality, four being shown, of radially extending depressions, forming mounds or projections on the under face of said top portion. Said projections are spaced around the central dome portion 12, and are adapted to engage the upper surface of the inwardly extending flange 2 of the tubular end portion 1, as indicated in Figs. 2 and 3.

The cap member is applied by passing the spring fingers 13 of the locking member through the recesses 4 of the tubular end portion 1, after which the cap member may be turned to lock the same in closing position, said spring fingers riding upon the cam faces 5 of said tubular portion. The bottom portions of the projections 15 ride upon the inwardly extending flange 2 of the tubular end portion so that the top portion 8 of said cap member is spaced from said flange, permitting air to readily pass therebetween. The marginal depending flange 9 of the cap member is so spaced from the outer surface of the tubular end portion

1 that a plurality of air passages 16 are provided between the finger recesses 10 of said flange, in communication with the spaces or passages between the inwardly extending flange 2 and the top portion 9 of the cap member when said cap member is in closing position, so that a plurality of circuitous air passages are provided between the inside of the tubular portion 1 and the atmosphere.

Other objects of the invention will be apparent to those skilled in the art to which it relates.

What I claim is:

1. A closure structure, comprising a tubular member and a closure member, and means for locking said closure member on said tubular member, the top portion of said closure member being provided with integrally formed projections adapted to engage the top portion of the tubular member so as to permit the passage of air around the top of said tubular member from the inside to the outside thereof.

2. A closure structure, comprising a tubular member and a cap member, said tubular member being provided with inner cam portions separated by recesses, said cap member being provided with a locking member adapted to enter said recesses and engage said cam portions upon relative rotary movement of said members, the top portion of one of said members being provided with spaced projections adapted to engage the top portion of the other member, thereby providing an air passage between the top portions of said members, said cap member being provided with an axially corrugated skirt portion adapted to surround the upper end portion of the tubular member and center the cap member upon the same, whereby the locking member of the cap is readily inserted or guided through the recesses of the tubular member.

3. A closure structure, comprising a tubular member, a closure member, and means for mounting said closure member upon said tubular member, the top portion of one of said members being provided with integrally formed spaced projections adapted to engage the top portion of the other member so as to permit the passage of air between the top portions of said members.

4. A closure structure, comprising a tubular member, a closure member, means for positively locking said closure member upon said tubular member upon relatively rotary movement of said members, and means between said members for spacing the top portions thereof apart so as to provide an air passage therebetween.

5. A closure structure, comprising a tubular member, a closure member, one of said members being provided with locking portions adapted for cooperation with cam portions of the other member, whereby said members may be locked together, and means carried by one of said members for providing an air passage therebetween from the inside to the outside of said tubular member.

6. A closure structure, comprising a tubular member, and a closure member, one of said members being provided with locking portions adapted for cooperation with cam portions of the other member, whereby said members may be locked together, one of said members being provided with spaced projections engaging said other member so as to provide an air passage between said members.

7. A closure structure, comprising a tubular member, a cap member, means for mounting said cap member upon said tubular member, and means for providing an air passage between the top portions of said members, said cap member being provided with an axially corrugated skirt portion adapted to surround the upper end portion of said tubular member and assist in centering the cap member thereon, the corrugations of said skirt portion providing air passages between the skirt portion of said cap member and the upper portion of said tubular member, which air passages communicate with the air passage between the top portions of said members.

8. A closure structure, comprising a tubular member, a cap member, and means for mounting said cap member upon said tubular member, the top portion of one of said members being provided with spaced projections adapted for engagement with the top portion of the other member so as to provide an air passage between the top portions of said members, said cap member being provided with an axially corrugated skirt portion adapted to surround the upper end portion of said tubular member and assist in centering the cap member thereon, the corrugations of said skirt portion providing air passages between the skirt portion and the tubular member, which air passages communicate with the air passage between the top portions of said members.

In testimony whereof I hereby affix my signature.

JAMES S. REID.