

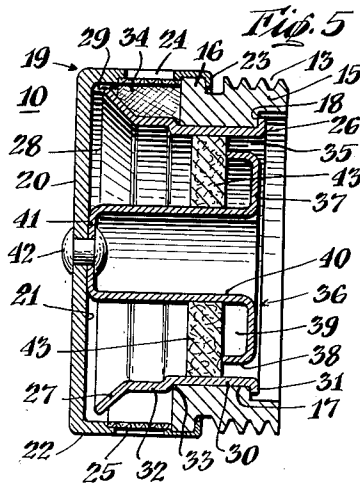
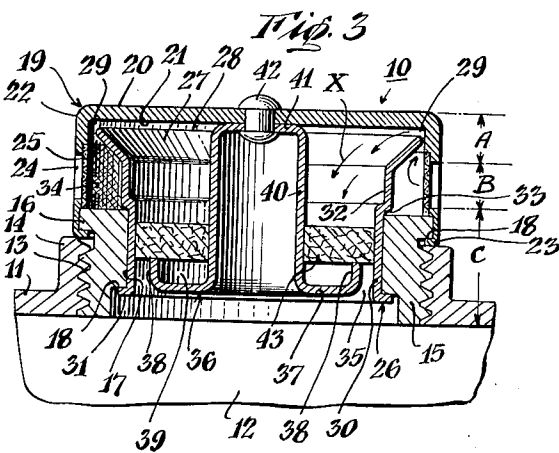
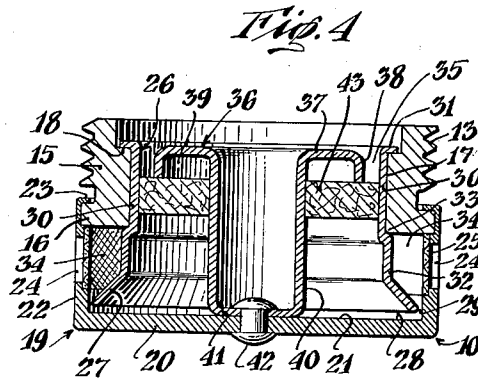
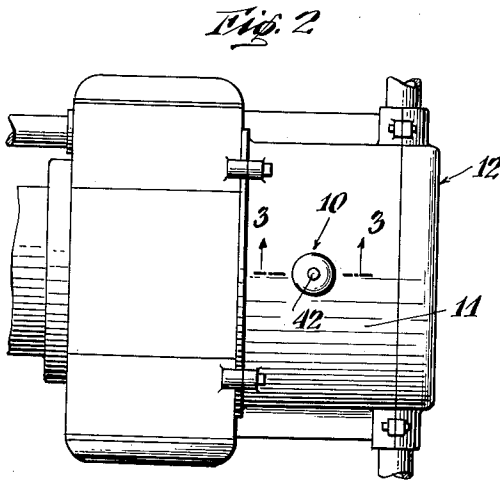
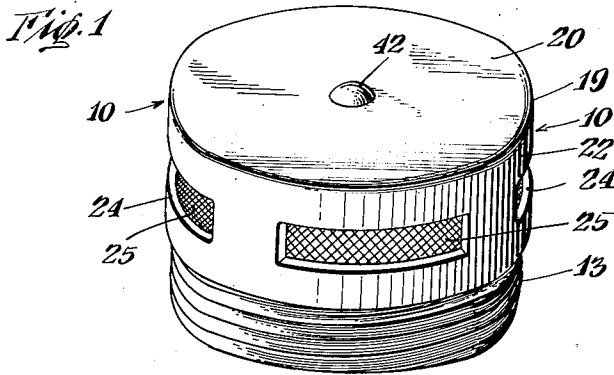
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FLUID PASSAGE TERMINUS DEVICE

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FLUID PASSAGE TERMINUS DEVICE

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2 Claims. (Cl. 183—75)

The present invention relates to fluid passage terminus devices which may be adapted for passing gaseous mediums into and out of encased apparatus, more particularly for attachment to a ported wall thereof with its interior in communication with the port and may be used to advantage for ventilating or venting ignition interrupters or distributors of magnetos or other encased magneto structure or battery ignition timer-distributors for internal combustion engines.

A general object of the present invention is the provision of such a device which is of simple construction and economical to produce in commercial production adapted for passing gaseous medium when mounted in any desired position while efficiently excluding liquids and foreign particles from the passage with which the fluid passage terminus device is associated.

A more specific object of the invention is the provision of such a device which is so constructed as effectively to perform its functions though mounted in any position, such as upright, downwardly, sideways or otherwise, without danger of permitting passage of liquid such as water, oil, anti-freeze and de-icing liquids and the like from entering encased apparatus, e. g., a magneto of an airplane engine.

Another object of the invention is to provide such a gaseous medium passage terminus device adapted for ready attachment to encased apparatus and associated with a port in a wall thereof which in its functioning takes advantage of restricted orifices characteristic thereof in excluding liquids and/or solids in gases or air that may enter the encased apparatus therethrough or while venting gaseous mediums therefrom.

Other objects of the invention will in part be obvious and will in part appear hereinafter.

The invention accordingly comprises an article of manufacture possessing the features, properties, and the relation of elements which will be exemplified in the article hereinafter described and the scope of the invention which will be indicated in the claims.

For a fuller understanding of the nature and objects of the invention, reference should be had to the following detailed description taken in connection with the accompanying drawing, in which:

Fig. 1 is a perspective view of a preferred form of the apparatus of the present invention;

Fig. 2 is an elevational view with parts broken away of an encased apparatus such as a magneto with the device of the present invention mounted thereon;

Fig. 3 is a sectional view with parts broken away taken on line 3—3 of Fig. 2;

Fig. 4 is a sectional view of the device of the

present invention similar to that of Fig. 3 showing another position of mounting; and

Fig. 5 is a view similar to Fig. 4 showing a still further different position of mounting.

It is well known that in various types of encased apparatus such as electrical mechanisms wherein operation is attained by electrical sparks or arcing such as ignition interrupters or distributors of magnetos or battery ignition timer-distributors, corrosive gases result which in the presence of moisture form nitric or nitrous acid corrosive to associated structure such as the insulation of cables. Many attempts have been made effectively to ventilate or vent such encased structure and to utilize such ventilators as inlets or outlets in the supercharging thereof as proposed in my copending application Serial No. 386,422, filed April 2, 1941, which became Patent No. 2,286,233 issued June 16, 1942. However, prior to my present invention such attempts have usually failed to be effective or entirely satisfactory by virtue of difficulties in preventing ingress of solids or foreign particles such as dust, etc., and liquids such as water, oil, anti-freeze and de-icing liquids, etc., or by virtue of the complicated and consequent costly construction thereof. The present invention efficiently overcomes these difficulties.

Referring to the drawing, like numerals refer to like parts throughout. A preferred modification may comprise a hollow casing 10 adapted for attachment to a fluid barrier structure such as a wall 11 of an encased apparatus such as a magneto 12, and in communication with a port therein or fluid passage traversing the same. Such attachment may be accomplished in any suitable manner, such as by engagement of threads 13 in an internally threaded port or passage; or by other means such as by press fitting into a socketed boss circumambient of such port or passage; or by clips, bolts or the like engaged on the fluid barrier structure such as the apparatus wall. For example the threaded portion 13 may be threaded into an internally threaded apertured boss 14 on the wall 11.

The hollow casing 10 preferably comprises three sections A, B and C. The section A is in the form of an imperforate cup-shaped end section, the section B constitutes a ported section and section C is a base section of the hollow casing. It will be noted that the ported section B is located between the end section A and the fluid barrier structure or wall 11; or, more specifically, between the end section A and base section C. Obviously the base section C may be omitted by suitably providing a boss 14 on the wall 11 or securing the section B directly to the wall of the device in any suitable manner.

In the preferred structure an annular sleeve

15 of substantial thickness is provided with an external flange 16 and an internal bore 17 shouldered at 18. A cup-shaped member 19 having an end wall 20 preferably flat as shown to provide a substantially flat inner surface 21 has a cylindrical side wall 22 the edge of which is fitted over the flange 16 and fastened thereto in any suitable manner such as by spinning over at 23. The side wall 22 in the ported section thereof is suitably apertured or ported perimetricaly, or i. e. circumferentially when member 19 is circular in cross-section, such as by the formation of elongated apertures 24—24, preferably four in number, as shown and these apertures may be provided with suitable screens 25—25 to prevent ingress of large foreign particles, such as dirt, hail, or the like.

A deflector member 26 is mounted upon the sleeve 16 and extends therefrom into the end section A toward the surface 21 of the end wall 20 and terminates in a baffle section 27 of greater cross-sectional area than the major portion thereof as shown with the baffle section terminating in a rim 28 spaced from the inner surfaces of both the side wall 22 and the end wall 20, thereby providing a restricted gaseous fluid passage 29 therebetween. Preferably the deflector member 26 comprises a cylindrical base portion 30 telescoped with the inner wall of the bore 17 of the sleeve 15 and having an edge 31 spun over the shoulder 18. The deflector member is preferably provided with an enlarged portion 32 between the base portion 30 and the baffle portion 27 to provide a shoulder 33 seating against the outer end of the sleeve 15 for simplicity of construction.

It will thus be noted that when the device of the present invention is mounted in the position proposed in Fig. 3 any liquid which may enter apertures 24—24 will be prevented from travel with gaseous fluid or air, if such is being drawn in through passage 29, by the baffle 27 and the orifice provided by the annular passage 29 which is sufficiently restricted to limit flow of gas through the device to a value whereby entrained moisture or liquid and at least a major portion of dust particles are separated out. The moisture or liquid which may thus collect in the space 34 will as it accumulates run out apertures 24—24 and the base portion 30 of the deflector member 26 provides an orifice 35 for either inlet or outlet of gaseous fluid as the case may be.

With the device of the present invention mounted on a ported wall of an encased device in the position indicated in Fig. 4 any liquid which may enter ports 24—24 will be collected in the bottom of the cup-shaped end section 20 to form a liquid seal and gaseous fluid will pass therethrough around the baffle rim 28 and upwardly through orifice 35 with a sufficient reduction in velocity to prevent drops of moisture from being carried upwardly by the gaseous current into the encased structure.

If the device of the present invention be mounted on encased apparatus in the position shown in Fig. 5, liquid that may enter upper ports 24—24 will be baffled out by the baffle portion 27 from passage along with gas or air and will flow along the outside of portion 32 to escape through a lower port or ports 24—24. Obviously if the device in such position is being used as an exit or vent, free escape of gaseous fluid from encased structure will be permitted by the device while liquids will be prevented from entering from the outside in a similar manner.

The structure also may include for assurance

of efficiency additional baffling means providing for further tortuous passage of gaseous medium. As shown this may comprise a transversely extending baffle member 36 suspended in the orifice 35 thereby reducing the effective cross-sectional area thereof. This baffle member preferably comprises a transversely extending plate or circular flange 37 centrally positioned in the circular orifice 35 and provided at or near the periphery thereof with a cylindrical flange 38 of appreciable depth extending toward the end section A or end wall 20 thereof thereby providing a catch basin 39. The baffle member 36 may be suspended in any suitable manner such as by circumferentially arranged supports extending from the section 30 of the deflector member 26 but preferably is suspended in the orifice 35 by a member extending from the end wall 20 such as a tubular member 40 closed at one end by a wall 41 riveted, or otherwise secured by any suitable means, such as a rivet 42 to the end wall 20. As a result the orifice 35 is suitably restricted so as further to insure low velocity of gaseous fluid passing through the device and when the device is used as an inlet effectively will baffle out liquid or moisture grains or foreign particles that occasionally may pass baffle 27.

The structure thus described is admirably suited for the inclusion of a screening unit 43 which may be made from any fluid-pervious material such as felt or metallic gauze dipped in oil to serve as a filter for solid particles, such as dust, to prevent their passage through the passage 29. The filtering member 43 may be of annular form and is fitted upon the tubular member 40 with its outer periphery engaging the inner wall of the portion 30 of the deflector member 26 and it is further supported by the edge of the cylindrical flange 38. The filter serves to prevent the entrance of solid particles regardless of the position of the device.

When the device of the present invention is mounted in a position similar to that depicted in Fig. 3 and used as an inlet, air or other gaseous fluid drawn in through the device may take a path similar to that indicated by the arrows in Fig. 3 and will be caused by the baffle plate 37 and associated flange 38 sharply to bend outwardly to pass through the restricted orifice 35, as will be noted. As a consequence moisture or liquid grains or dust particles and the like which may be present in the air currents will be caused to be thrown in the direction indicated by the arrow X toward the basin 39 which effectively will collect them therein and prevent them from entering the device. The amount of such material which may pass baffle 27 is so small as readily to be accommodated by the dimensions of the basin 39.

Obviously incoming gaseous fluid such as air will take similar paths through the device when positioned as indicated in Figs. 4 and 5 and the member 36 will operate effectively as a baffle to prevent entrance of moisture, grains and foreign particles while desirably reducing the effective cross-sectional area of orifice 35 to reduce velocity and provide for tortuous passage therethrough. Obviously the baffle member 36 is not limited in shape to that shown by way of example but preferably is cup-shaped toward the end section to provide the basin when in the position depicted in Fig. 3. For example, flange 38 may gradually merge with the portion 37 curvilinearly and as shown for economy of production and simplicity of construction the tubular supporting

member 40, end wall thereof 41, the baffle flange 37 and the cylindrical flange 38 are made in one piece suitably drawn from metallic material.

It will thus be seen that the objects set forth above are efficiently attained and since certain changes may be made in the above article, and different embodiments of the invention could be made without departing from the scope thereof, it is intended that all matter contained in the above description or shown in the accompanying drawing shall be interpreted as illustrative and not as limiting the scope of the following claims.

Having described my invention, what I claim as new and desire to secure by Letters Patent is:

1. A device for trapping liquids and solids in gaseous fluids passing through a member having a fluid passage, comprising a hollow casing having a base, an imperforate cup-shaped end and a ported sidewall between the base and the end, means on said base for securing the casing to said member, a tubular baffle member within and spaced from said casing secured to said base in fluid-tight relationship thereto, said baffle member overlapping said ported sidewall and having an outwardly flared open end terminating within and closely adjacent to said cup-shaped end to provide a restricted passage for gaseous fluid

between said baffle and said cup-shaped end, and a baffle plate within and extending transversely of said baffle member and having a peripheral flange extending toward said cup-shaped end in closely spaced relation to said baffle member.

2. A device for trapping liquids and solids in gaseous fluids passing through a member having a fluid passage, comprising a hollow casing having a base, an imperforate cup-shaped end and a ported sidewall between the base and the end, means on said base for securing the casing to said member, a tubular baffle member within and spaced from said casing secured to said base in fluid-tight relationship thereto, said baffle member overlapping said ported sidewall and having an outwardly flared open end terminating within and closely adjacent to said cup-shaped end to provide a restricted passage for gaseous fluid between said baffle and said cup-shaped end, a tubular member secured to said cup-shaped end and extending within said baffle member, a baffle plate extending laterally from said tubular member within and transversely of said baffle member, and having a peripheral flange extending toward said cup-shaped end in closely spaced relation to said baffle member.

LLOYD H. SCOTT.