

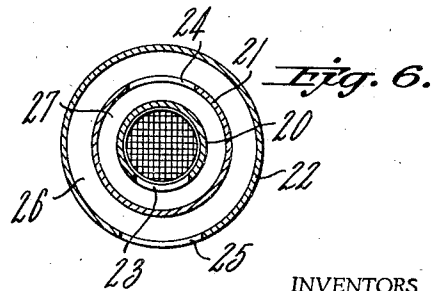
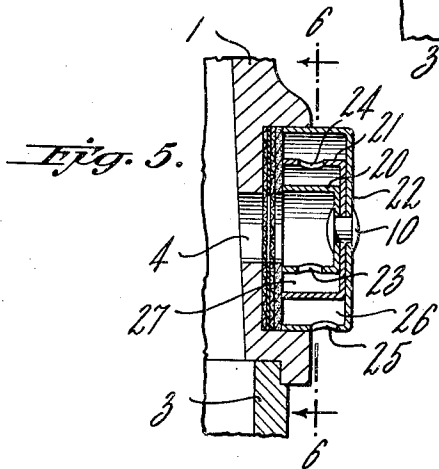
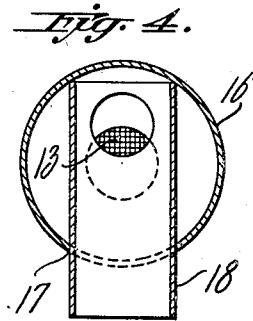
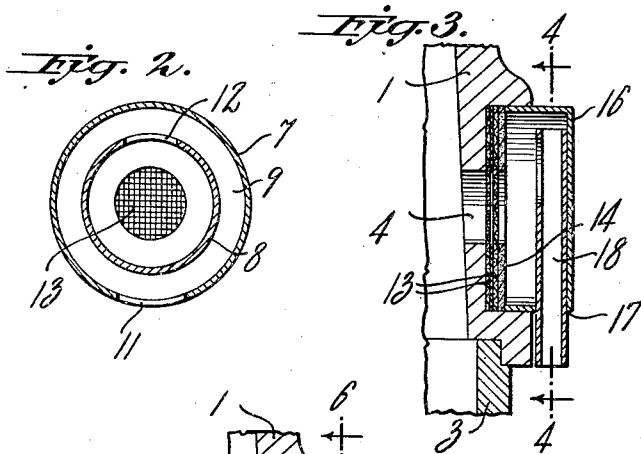
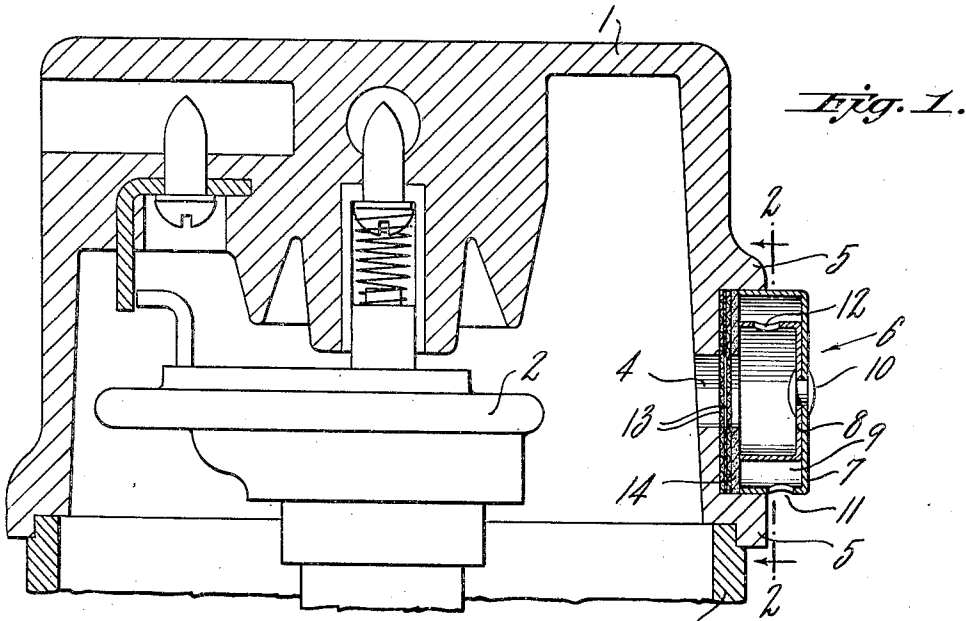
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VENTILATOR ATTACHMENT FOR ELECTRIC IGNITION APPARATUS

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VENTILATOR ATTACHMENT FOR ELECTRIC
IGNITION APPARATUS

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This invention relates to ventilators for ignition interrupters or distributors for magnetos or battery ignition timer-distributors, in which electric sparks or arcs occur between the two contact points of the interrupter, or between the rotating distributor electrodes and the fixed sparkplug electrodes in sequence. As a result of these sparks or arcs, a corrosive gas, or acid in the presence of moisture, is formed in the interrupter or distributor compartment which finally corrodes the interrupter contacts or the distributor electrodes to an inoperative degree. Heretofore it has been usual to ventilate the interrupter or distributor compartment so as to sweep out these gases and vapor before their corrosive action occurs, but these ventilators usually comprise openings which, with or without screens, permit the entry of water and dust into the compartment, thereby resulting in another condition finally interfering with the normal operation of the magneto or timer.

In accordance with our invention, we provide a ventilator attachment which projects sufficiently outside the compartment and is adequately sealed therein to avoid any collection of water in the magneto or timer, and which provides on its interior a circuitous path for the air such that insufficient air pressure or current exists to carry entrained moisture or dust within the compartment even though no screen is used.

It is a primary object of our invention to provide a simple and inexpensive ventilator attachment of this kind which may be readily secured in the interrupter or distributor compartment of a magneto or battery ignition timer.

Another object of our invention is to provide a ventilator attachment of this kind which is so located, and is so arranged on its exterior and its interior, as to reduce the air pressure or current sufficiently to substantially preclude the entrance of water or dust into the magneto or timer.

Other objects will be apparent from the following description taken in connection with the accompanying drawing illustrating the invention in application, as an example, to a distributor compartment of a magneto or battery ignition timer. In the drawing, Fig. 1 shows a distributor, partly broken away, with one form of the ventilator attachment installed therein; Fig. 2 is a cross section of the ventilator attachment alone on line 2—2 of Fig. 1; Fig. 3 shows a fragmentary view of the distributor in which is installed a modified form of ventilator attachment; Fig. 4 is a cross section thereof on line 4—4 of Fig. 3;

Fig. 5 is a similar fragmentary view showing another modified form of ventilator attachment; and Fig. 6 is a cross section thereof on line 7—7 of Fig. 5.

The invention is illustrated in conjunction with a distributor in a combination with which it is particularly useful. However, its application to other devices will be obvious to those skilled in the art from a consideration of the following disclosure.

Referring to the drawing, reference numeral 1 indicates a distributor head or cap of conventional type, including the usual rotor 2, detachably mounted upon a casing 3. In the wall of head 1 is an opening 4 positioned in substantially the plane of rotation of rotor 2. An annular boss 5 of considerably greater internal diameter than the diameter of the opening 4 is provided on the exterior wall of the head 1 surrounding the opening 4. The ventilator attachment, indicated generally at 6, has an external diameter closely approximating that of the internal diameter of the annular boss 5 so that when the ventilator 6 is pressed into the annular boss 5 it makes a tight fit therewith which is made airtight in a manner hereinafter to be described.

The ventilator 6 comprises a pair of cup-shaped members 7 and 8. The member 8 is of less diameter than the member 7 so that when the smaller member is placed concentrically within the larger member an annular passage 9 is provided therebetween. The closed ends of the two cup-shaped members are riveted together at the centers thereof as indicated at 10 or otherwise permanently attached. An opening 11 of less cross-sectional area than the opening 4 is provided in the rim of the larger cup-shaped member 7, this opening being spaced so that it is closely adjacent the closed end thereof outside the boss 5. A similar opening 12 is provided in the smaller cup-shaped member 8, and this opening 12 is disposed diametrically opposite the opening 11.

In attaching the ventilator to the distributor head, a wire screen 13 is first placed within the annular boss 5 over the opening 4 and an oil impregnated Vellumoid washer 14 is placed over the screen. The ventilator assembly 6 is then pressed in position with the opening 11 at the lower end thereof. After pressing the ventilator assembly 6 firmly against the washer 14 the joint between the ventilator and the annular boss 5 is preferably sealed with Bostik cement, to insure that there will be no air leakage at any of these places.

In the operation of the device as above de-

scribed, it will be understood that the differences in the pressure within and without the distributor head 1 are relatively slight. During the operation of the rotor 2 the air within the head 1 is set in motion and because of this some of it is thrown outwardly through the orifice 4. When the rotor 2 stops there will be some flow in the opposite direction. Temperature changes within the head 1 will also effect changes in the flow of air to or from the interior thereof. It is highly desirable that any air flowing to the interior of the head 1 be relatively free from moisture, because the sparks at the distributor points during the operation of the device generate ozone which tends to combine with the nitrogen of the air to form nitrous oxide and if moisture is present the oxides tend to form nitric acid which is extremely corrosive and thus detrimental to the operation and durability of the device. By shielding the orifice 4 in the manner shown, air entering the device in passing through the annular passage 9 that it possesses insufficient force to carry particles of water upwardly to the orifice 12. Any water therefore that enters the orifice 11 will collect adjacent this orifice and will drip out upon any accumulation thereof or be driven out upon any reversal of the flow of air. The orifice 11 is positioned sufficiently close to the closed end of the outer cup-shaped member that this orifice extends slightly beyond the side wall of the distributor head 1. This avoids any drip of the water against the side wall of the casing where it might enter the distributor at the joint between the head 1 and the casing 3. The entry of dust is precluded in the same manner.

While the form of the invention above described operates satisfactorily without the wire screen 13 such a screen is preferably provided and is preferably formed of two discs of fine mesh copper wire with a sheet of thin silk therebetween.

The form illustrated in Fig. 3 comprises a single cup-shaped member 16 having an opening 17 in its rim closely adjacent the closed end thereof. A flattened tube 18 projects through the opening 17 and diametrically across the interior of cup-shaped member 16 with an opening adjacent the upper portion thereof. The tube projects downwardly sufficiently beyond the lower edge of the cup-shaped member to insure that any drip therefrom will not contact with the wall of the casing 3 at a point adjacent the joint between this casing and the head 1. The operation of this form of the device is otherwise similar to that described in connection with Fig. 1.

The form illustrated in Fig. 4 is similar in all respects to the form illustrated in Fig. 1 except that an additional cup-shaped member 20 is provided within two cup-shaped members 21 and 22, the vent orifice 23 of the smallest cup-shaped member being diametrically opposite the vent orifice 24 of the intermediate member which orifice 24 is in turn diametrically opposite the vent orifice 25 of the larger cup-shaped member. Thus two annular passages 26 and 27 are provided, the function of which is the same as the function of the annular passage 9 in the previously described construction.

In all of the forms shown, the device is illustrated as applied to a distributor of the vertical type. Its application to a distributor of the horizontal type is obvious from the above disclosure. In such horizontal types the ventilator would be applied to the underside of the distributor head, an arrangement which would correspond to a clockwise rotation of Figs. 1, 3 or 5 through 90°. The application of the ventilator attachment to the interrupter housing of a magneto or battery ignition timer will also be apparent.

It has been found in dust and water tests with a magneto having a ventilator attachment of a kind herein disclosed, that the magneto operated without failure over periods of time considerably longer than was possible without the attachment but with merely a screen of the kind herein noted arranged over the vent orifice 4. No water or dust was found in the magneto after an extended test, even when the screen 13 was omitted from the ventilator attachment. Also it was found that the results were still further improved when the opening 11, 18 or 25 was of less cross-sectional area than that of the vent opening 4.

From the above described embodiments of the invention, other embodiments and modifications within the terms of the appended claims will be obvious to those skilled in the art.

Having thus described the invention, what is claimed as new is:

1. An attachment for ventilating an electric ignition machine having a vent orifice in a wall thereof, comprising a cup-shaped member having its open end sealed to the wall of the machine and surrounding said vent orifice, and a hollow member having at least a portion within the first one, said members having offset passages providing a circuitous path for air passing between the interior of the machine and the outside atmosphere.
2. An attachment for ventilating an electric ignition machine having a vent orifice in a wall thereof, comprising a pair of cup-shaped members of different diameter arranged concentrically one within the other and having their open ends sealed to the side wall of the machine with the innermost cup-shaped member surrounding said vent orifice, said outermost cup-shaped member having an opening in the lowermost portion of the rim thereof, and said inner cup-shaped member having a diametrically oppositely disposed opening.
3. An attachment for ventilating an electric ignition machine having a vent orifice in a wall thereof, comprising a plurality of cup-shaped members of different diameter arranged concentrically one within the other and having their open ends sealed to the wall of the machine with the innermost cup-shaped member surrounding said vent orifice, said outermost cup-shaped member having an opening in the lowermost portion of the rim thereof, and said inner cup-shaped members having diametrically oppositely disposed openings.

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