July 9, 1929. J. B. HOLTSON 1,719,932

TANK VENT

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Fig. 1

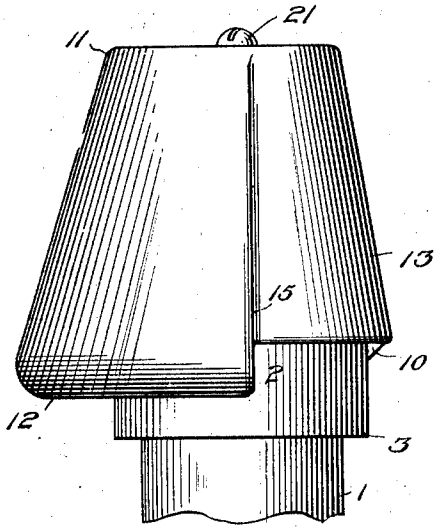


Fig. 2.

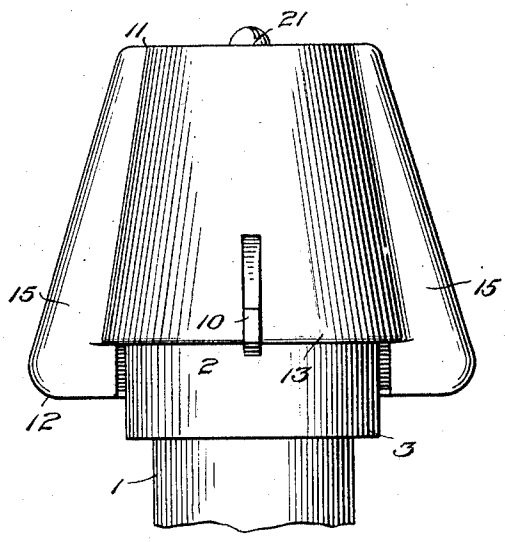


Fig. 3

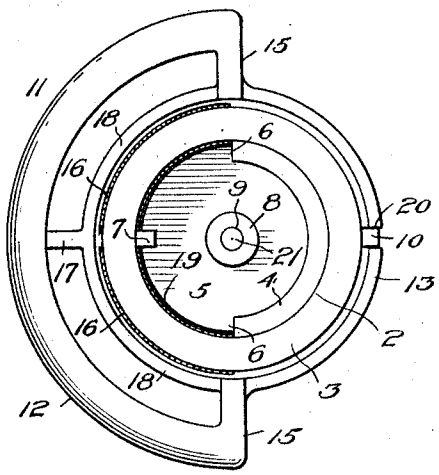
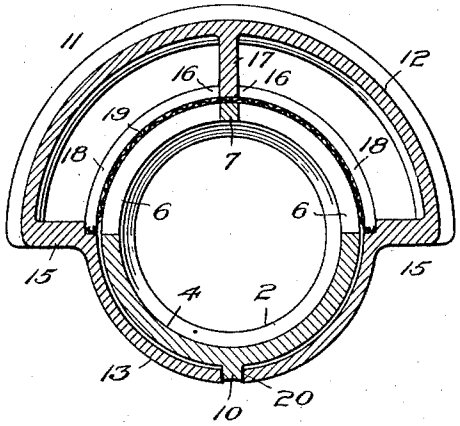


Fig. 4



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Fig. 5

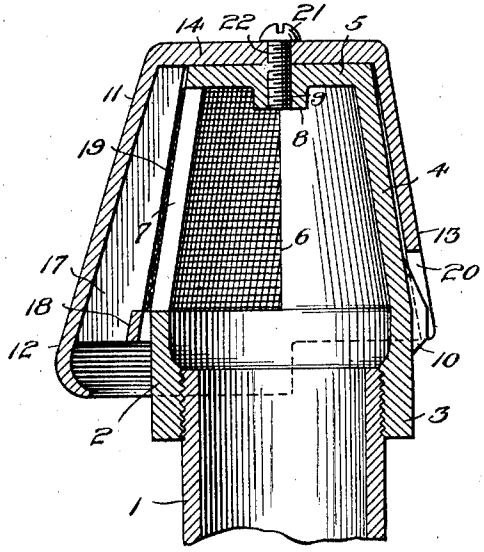


Fig. 6

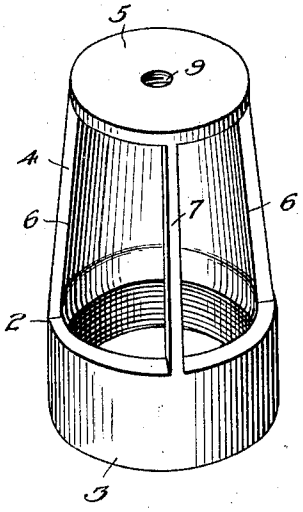
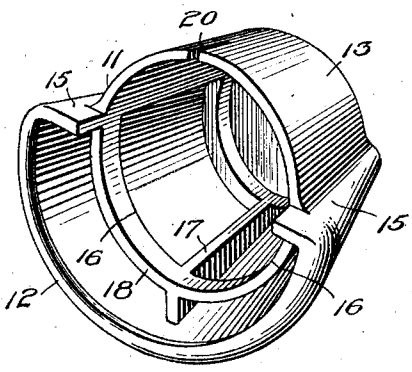


Fig. 7



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Patented July 9, 1929. 1,719,932

UNITED STATES PATENT OFFICE.

JAMES B. HOLTSON, OF BALTIMORE, MARYLAND.

TANK VENT.

Application filed May 4, 1927. Serial No. 188,733.

This invention relates to accessories for use in connection with tanks employed for the storage of hydrocarbons, particularly gasoline, fuel and lubricating oils, or the like.

The principal object of the invention, generally stated, is to provide a novel vent device for the purpose of permitting air to pass to or from a storage tank as it is displaced by filling of the tank or as it replaces liquid withdrawn from the tank, the vent device having means therein which will prevent explosion of the gases within the tank in case a flame or sparks are brought into the vicinity.

An important object of the invention is to provide a vent device embodying separable parts clamping a wire screen or gauze between them, the screen acting to prevent igniting the gases in the tank and the separability of the parts permitting removal of the screen for cleaning or for replacement in case it becomes corroded from any cause.

Another object of the invention is to provide a vent device so constructed and arranged as to prevent the ingress of water, as during rain storms, dirt or any foreign matter.

A further object of the invention is to provide a vent device of this character embodying novel means for maintaining the separable parts in assembled relation so that they will not become accidentally detached or so that they cannot be readily disassembled by some mischievous person tampering with the device.

An additional object is to provide a vent device which will be very simple and inexpensive to manufacture, easy to install, assemble or disassemble, positive and efficient in action, durable in service, and a general improvement in the art.

With the above and other objects and advantages in view, the invention preferably consists in the arrangement and combination of parts and detailed structural features to be hereinafter more fully described and claimed, and illustrated in the accompanying drawings in which:

Figure 1 is a side elevation of the device mounted upon a vent pipe,

Figure 2 is an elevation taken at right angles to Figure 1,

Figure 3 is a bottom plan view,

Figure 4 is a horizontal cross section,

Figure 5 is a vertical cross section,

Figure 6 is a perspective view of the cage member,

Figure 7 is a perspective view of the hood looking at the inside thereof.

Referring more particularly to the drawings, the numeral 1 designates the vent pipe such as is provided in connection with tanks, for instance those used for storing gasoline and oils at automobile service stations and other places. In carrying out the invention I provide a cage member indicated generally at 2, this cage member being preferably formed as a single casting and including a lower ring portion 3 from which rises a frusto-conical wall portion 4 at the top of which is a disk shaped top wall portion 5. The wall portion 4 is formed with openings 6 separated by a relatively thin web or rib 7. At the underside of the center of the top wall portion 5 is preferably provided a boss 8 and the top wall and boss are preferably formed with a tapped hole 9. On the outside of the cage member is formed a lug or rib 10 for a purpose to be described. The ring portion 3 is internally threaded as shown for screwing engagement upon the upper end of the vent pipe 1.

The device further includes a hood member indicated generally at 11, this being likewise preferably formed as a single casting and being of the specific structure to be described. The hood member 11 is formed as a frusto-conical shell and includes a relatively large portion 12 and a smaller portion 13 both having a common end wall or top 14. The large portion 12 is concentric with the smaller portion 13 and is connected therewith at substantially diametrically opposite points by wall portions 15. Within the confines of the large portion 12 the smaller portion 13 is formed with openings 16 separated by a web or rib 17 which is integral with the outer or larger portion 12. The cutting away of the smaller portion 13 to form the openings 16 defines a ring portion 18 located opposite the top of the ring portion 3 of the cage member 2. This ring portion 18 is of course spaced from the adjacent wall of the larger portion 12 of the hood to define an air chamber.

Disposed about the cage member 2 and covering the openings 16 therein is a wire screen or gauze 19 clamped between the cage mem-

ber and the hood 11, the areas of clamping engagement being at the longitudinal openings of the openings 6 and 16 and between the ribs or webs 7 and 17, as well as the ring portions 3 and 18. No other securing means is necessary to maintain the screen or gauze in proper position.

To prevent relative rotation of the cage and hood members the latter is preferably provided at one side of its smaller portion 13 with an elongated slot 20 opening out to the edge and slidably receiving the lug or rib 10 on the cage member. It is also desirable to hold the parts against separation in a longitudinal direction and this may be accomplished by providing a screw 21 threaded through a hole 22 in the end wall or top 14 of the hood and into the hole 9 in the closed end of the cage member. The entire assembly is mounted upon the vent pipe 1 by screwing it into place.

In the operation, it will of course be readily apparent that air may pass freely through the wire screen or gauze, the flow being outward when the tank is being filled and inward when the liquid within the tank is withdrawn. It is likewise apparent that air may pass in or out as the case may be depending upon the expansion or contraction thereof within the tank in accordance with temperature changes. Though the term "air" is used it is to be understood that this covers gas as well inasmuch as there is always gas above liquid such as gasoline or the like. The provision of the screen or gauze is an important feature owing to the well known fact that a flame will not pass through it. On account of its presence explosions will of course be avoided. Whenever it is necessary to remove the screen for cleaning purposes or to replace it with a new one on account of corrosion or the like it is a simple matter to remove the screw 21 and disassemble the parts. Inasmuch as the chamber within the device opens out at the bottom it will be impossible for rain or other water, dust, dirt and foreign matter of other kinds to enter the tank. It is really believed that the construction, operation and advantages will be readily apparent to one skilled in the art without further explanation.

While I have shown and described a preferred embodiment of the invention, it should be understood that the right is reserved to make all such changes in the details as well as the arrangement and combination of parts as will not depart from the spirit of the invention or the scope of the claims hereunto appended.

Having thus described the invention, I claim:

1. A vent device for storage tanks having a vent pipe, comprising a cage member mounted upon the pipe, the cage member having openings in its side wall, a hood detachably mounted upon the cage member in enclosing relation thereto, and a wire screen clamped by and between the cage and the hood member and covering the openings in the former.

2. A vent device for storage tanks having a vent pipe, comprising a cage member mounted directly upon the pipe, the cage member having openings in its side wall, a hood detachably and directly mounted upon the cage member in enclosing relation thereto, and a wire screen clamped between the cage and the hood member and lying against the periphery of the former and covering the openings in the former, the hood member including a portion fitting snugly about a portion of the cage and further including an outwardly offset or larger portion at one side spaced from that portion of the cage provided with the openings to define an air chamber opening out to the bottom.

3. A vent device for the vent pipes of storags tanks, comprising a case member adapted to be mounted upon a vent pipe and including a cylindrical ring portion and a frusto-conical wall portion provided with openings, said cage member having a closed upper end, a hood member disposed in encircling relation to the cage member and having its top resting upon the closed upper end of the cage member, the hood member including a relatively large and a relatively small portion, said smaller portion being continuous and formed with openings registering with the openings in the cage member, said larger portion of the hood being connected with the smaller portion thereof beyond the openings therein by substantially radial wall portions to define an air chamber opening out to the bottom and communicating with the pipe through the registering openings, and a metal screen covering the registering openings and clamped by and between the cage and hood members.

4. A vent device for the vent pipes of storage tanks, comprising a cage member adapted to be mounted upon a vent pipe and including a cylindrical ring portion and a frustoconical wall portion provided with openings, said cage member having a closed upper end, a hood member disposed in encircling relation to the cage member and incldung a relatively large and a relatively small portion, said smaller portion being continuous and formed with openings registering with the openings in the cage member, said larger portion of the hood being substantially concentric with and extending partly about the smaller portion and being connected with the smaller portion beyond the openings therein by wall portions to define an air chamber opening out to the bottom and communicating with the pipe through the registering openings, a metal screen covering the registering openings and clamped between the

cage and hood members, and means for preventing relative rotation of the cage and hood members.

5. A vent device for storage tanks having a vent pipe, comprising a cage member mounted upon the pipe, the cage member having a closed top wall and openings in its side wall, a hood detachably mounted upon the top of the cage member in enclosing relation thereto, a wire screen clamped by and between the cage and the hood member and covering the openings in the former, and means for preventing relative rotation of the cage and hood members.

6. A vent device for storage tanks having a vent pipe, comprising a cage member mounted upon the pipe, the cage member having a closed top wall and openings in its side wall, a hood detachably mounted upon the closed top wall of the cage member in enclosing relation thereto, a wire screen clamped by and between the cage and the hood member and covering the openings in the former, means for holding the hood and cage members against relative rotative movement, and means at the top of the cage and hood members for preventing relative longitudinal movement thereof.

7. In a device of the character described, a cage member formed for mounting upon a vent pipe, the cage member having openings in its side wall, a hood member arranged in enclosing relation to and mounted upon the cage member, the hood member including an inner portion having openings registering with those in the cage member and further including an outwardly offset portion extending beyond said openings to define an air chamber opening out at the bottom, and means securing the hood and cage members together at their closed upper ends.

8. In a device of the character described, a cage member formed for mounting upon a vent pipe, the cage member having openings in its side wall, a hood member arranged in enclosing relation to and mounted upon the cage member, the hood member including an inner portion having openings registering with those in the cage member and further including an outwardly offset portion extending beyond said openings to define an air chamber opening out at the bottom, means securing the hood and cage members together at their closed upper ends, the hood member having a slot therein, and the cage member having a projection thereon fitting within said slot to prevent relative rotation of the hood and cage members.

9. In a device of the character described, an apertured cage member adapted to be mounted upon a vent pipe, a hood member enclosing the cage member and having an apertured inner portion arranged in registration with the apertured portion of the cage member, and a wire screen lying against a portion of the cage member to extend over the apertures therein, the hood member lying against the screen to clamp the same against the cage member.

In testimony whereof I affix my signature.

JAMES B. HOLTSON.