

April 14, 1931.

R. J. ANSCHICKS

1,800,977

FIRE BAFFLE

Filed Sept. 5, 1929

Fig. 1.

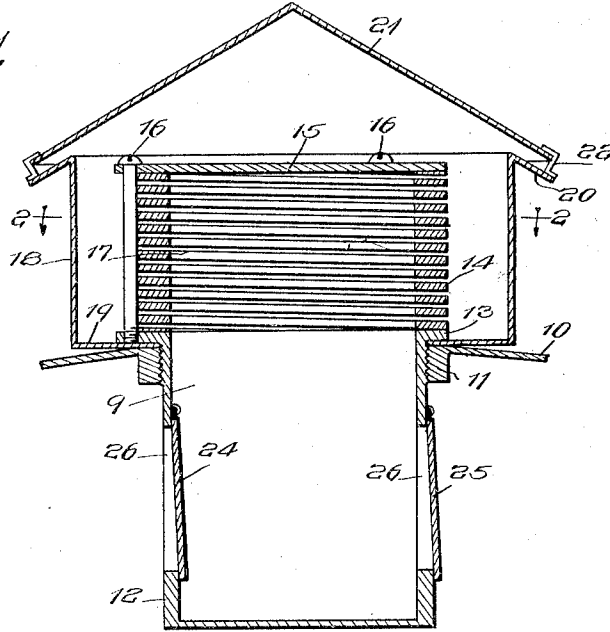


Fig. 2.

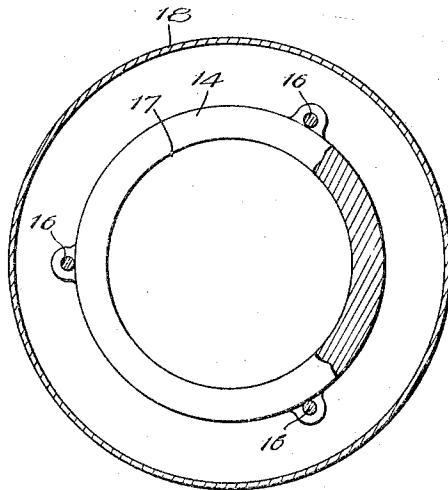
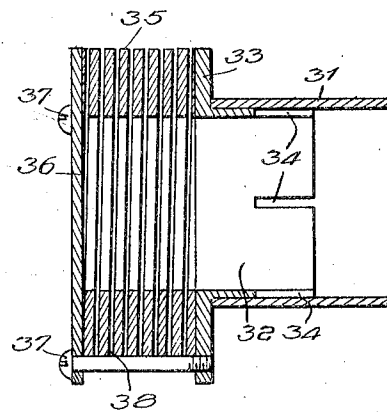


Fig. 3.



Witness:

William P. Milroy

Inventor:
Rudolph J. Anschicks

By *Hill Hill*

Attys 27

UNITED STATES PATENT OFFICE

RUDOLPH J. ANSCHICKS, OF CHICAGO, ILLINOIS, ASSIGNOR TO PROTECTOSEAL COMPANY OF AMERICA, OF CHICAGO, ILLINOIS, A CORPORATION OF ILLINOIS

FIRE BAFFLE

Application filed September 5, 1929. Serial No. 390,556.

My invention relates to fire baffles and more particularly to fire baffles of the general type of construction shown in my pending applications, Serial No. 354,329, filed April 21, 1929, and Serial No. 388,159, filed August 24, 1929, wherein are shown a plurality of relatively closely spaced annular plates which permit the passage of fluid therethrough and quench the flames in the event such fluid is burning.

An object generally of the invention is the improvement of fire baffle construction of the kind described.

An object of my invention is to provide an improved device for preventing the passage of fire or sparks to or from any means for storing, conveying, or controlling inflammable fluids or liquids; and also provides fluid outlets therethrough equal in area to the opening in which the device is mounted.

A more particular object of the invention is the provision of improved fire baffle construction in combination with the inlet of a carburetor which is operable to prevent exterior conflagration in the event of back firing from the carburetor.

Still another object of the invention is the provision of improved fire baffle construction mounted in the air inlet of a carburetor so as to permit unrestricted flow of air into the carburetor and to prevent the escape of back-firing flames through the air inlet.

The invention contemplates the provision of a casing of substantial thickness, the walls of which are so apertured as to permit the passage of fluid therethrough, the aperture or apertures being relatively very thin as compared with the thickness of the wall of the casing, whereby burning gases are permitted to pass through the wall but in so doing, are cooled and the flames extinguished.

My invention contemplates constructing the side wall of the casing of a plate or plates having flat cross sections arranged to form a helix, the pitch of the helix being slightly greater than the thickness of the plate so that a helical aperture or apertures are formed in the wall of the device through which the gases are permitted to escape.

A further object is the provision of a de-

vice which is simple, compact, durable, reliable, efficient and satisfactory for its intended purpose.

Many other objects and advantages of the construction herein shown and described will be obvious to those skilled in the art from the disclosure herein given.

To this end, my invention consists in the novel construction, arrangement, and combination of parts herein shown and described, and more particularly pointed out in the claims.

In the drawings, forming a part of this specification, and wherein like reference characters indicate like or corresponding parts:

Fig. 1 is a transverse sectional view of a portion of a tank or similar receptacle to which a device embodying my invention is applied;

Fig. 2 is a section along the line 2—2 of Fig. 1; and

Fig. 3 is a sectional view showing a carburetor intake having the device of my invention mounted thereon.

Referring now more particularly to the drawings, the invention is shown in Fig. 1 in connection with a vent opening 9 in a tank dome 10 or the like. A threaded annular flange 11 forms a border for the opening 9. A cylindrical member 12 having its upper end open and its lower end closed has threaded engagement with the flange 11 thereby closing the opening 9.

The upper end of the cylindrical member 12 is bounded by an outwardly turned flange 13 upon which a helical plate 14 is positioned to form an extension of the cylindrical member. A cover plate 15 closes the outer end of the cylindrical space enclosed by the helix 14 and is fastened to the flange 13 by a plurality of screw bolts 16. The cross section of the plate 14 is of uniform thickness, the pitch of the plate being slightly greater than its thickness, thereby providing a relatively thin helical aperture 17. The thickness of the helical aperture 17 may be adjusted by means of the screws 16, but the thickness of the aperture is relatively slight as compared with the thickness of the plate 14. The

height to which the plate 14 extends and the number and thickness of the apertures is preferably made such that the total inlet area of the aperture is substantially equal to the cross sectional area of the cylindrical space enclosed by the helical plate 14.

The cylindrical member 12 has oppositely positioned openings 26 in its side walls which are normally closed by doors 25 and 26. The doors 25 and 26 are pivotally suspended from supports 27 and are slightly inclined to the vertical. The door 24 opens inwardly in order to provide an outlet for vapors when the pressure within the tank exceeds a predetermined maximum. The door 25 is swing open outwardly and remains closed until there is a predetermined low pressure within the tank. The pressure of the atmosphere upon the interior of the door 25 will then cause the door 25 to swing open and to relieve the low pressure condition within the tank. This form of vent control device is more fully described and explained in my copending application, Serial No. 388,159, filed Aug. 24, 1929. While this device is shown with the fire baffle on the exterior of the tank and the closed cylindrical member 12 on the interior of the tank; these positions could, if desired, be reversed.

The projecting exterior portion of the device comprising the fire baffle is surrounded with a cylindrical housing 18 having an annular plate 19 clamped between the flanges 11 and 13. The upper edge of the housing 18 is bounded by a downwardly sloping flange 20. A conical member 21 forms a cover for the housing 18 and is fastened thereto and spaced apart from the housing by a plurality of clips 22. The space between the conical member 21 and the flange 20 is sufficient to permit unretarded flow of air and gases. It will be obvious that this construction of a fire baffle is relatively simple and is capable of having the thickness of the helical aperture adjusted by merely threading the screw bolt 16 inwardly or outwardly as desired.

Another embodiment of the invention is shown in Fig. 3 as mounted in and forming a fire baffle for carburetor air inlet pipe 31. A pipe section 32 is provided for mounting in the open end of the inlet pipe 31 forming a close fit therewith and in order that the pipe 32 may be easily positioned or removed it is provided with a plurality of slots 34. The outer end of the pipe 32 has a flange 33 between which and a cover plate 36 is positioned a helical plate 35, forming a fire baffle. The plate 36 is connected to the flange 33 by a plurality of bolts 37. The helical plate 35 is thereby clamped in position, the bolts 37 also providing means for adjusting a helical aperture 38 between the various windings or wrappings of the plate.

In case of back fire from the carburetor, the explosive gases will be able to escape through

the helical aperture 38, and at the same time, by reason of the aperture being thin and the width of the plates relatively great, the flame will be extinguished. This embodiment of the device, in addition to providing a fire extinguisher, permits the force of the explosion of gases to be dissipated therethrough, and also serves as a muffler for deadening the noise of the explosion.

Having thus described my invention, it is obvious that various immaterial modifications may be made in the same without departing from the spirit of my invention; hence, I do not wish to be understood as limiting myself to the exact form, construction, arrangement and combination of parts herein described and shown, or uses mentioned. What I claim as new and desire to secure by Letters Patent is:

1. Fluid control means for a vent opening of a casing of the kind described, said means comprising a helical plate, a cylindrical member mounted on one end of the helical plate, and means closing the opposite end of said plate.

2. Fluid control means for a vent opening of a casing of the kind described, said means comprising a helical plate, a cylindrical member mounted on one end of the helical plate, and means closing the opposite end of said plate, the space between adjacent windings of the plate being thin relative to its width.

3. Fluid control means for a vent opening of a casing of the kind described, said means comprising a helical plate, a cylindrical member mounted on one end of the helical plate, means closing the opposite end of said plate, and fastening means operable to fasten said closing means to said cylindrical member.

4. In a device of the kind described, a helical plate, means for closing an end of the space enclosed by said plate, and means for fastening the device to the vent opening of a tank or the like with the open end of said helical plate in registry with said opening.

5. In a device of the kind described, a helical plate, means for closing an end of the space enclosed by said plate, and means for fastening the device to the vent opening of a tank or the like with the open end of said helical plate in registry with said opening, the space between adjacent windings of the plate being thin relative to the width of the plate.

6. Fluid control means for a vent opening of a tank of the kind described, comprising a helical plate having one end enclosing the peripheral edge of the opening, a plate closing the outer end of the cylindrical space formed by the helical plate, the space between adjacent windings of said helical plate being thin relative to the width of the plate.

7. Fluid control means for a vent opening of a casing of the kind described, said means comprising a helical plate, a cylindrical member mounted on one end of the helical plate,

means closing the opposite end of said plate, and fastening means operable to compress the helical plate between said closing means and cylindrical member.

5 8. Fluid control means for a vent opening of a casing, said means comprising a helical plate, a cylindrical member mounted on one end of the helical plate, means closing the opposite end of said plate, and fastening means
10 operable to compress the helical plate between said closing means and cylindrical member, said fastening means being adjustable to permit the thickness of the spacing between the windings of the helical plate to be varied.

15 9. In a device of the kind described, a helical plate, a cover for one end of the cylindrical space enclosed by the plate, an annular member mounted on the opposite end of the plate, and a plurality of bolts ad-
20 justably connecting said cover and annular member with the helical plate positioned therebetween.

10. In combination with an inlet pipe for a carburetor, a plate forming a helix and
25 encompassing the sides of a space communicating with said pipe, means for closing an end of said space, said plate having a relatively thin space between its windings.

In witness whereof, I hereunto subscribe
30 my name this 21st day of August, A. D., 1929.

RUDOLPH J. ANSCHICKS.

35

40

45

50

55

60

65