

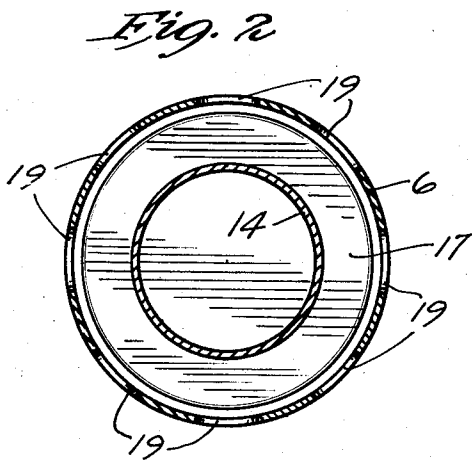
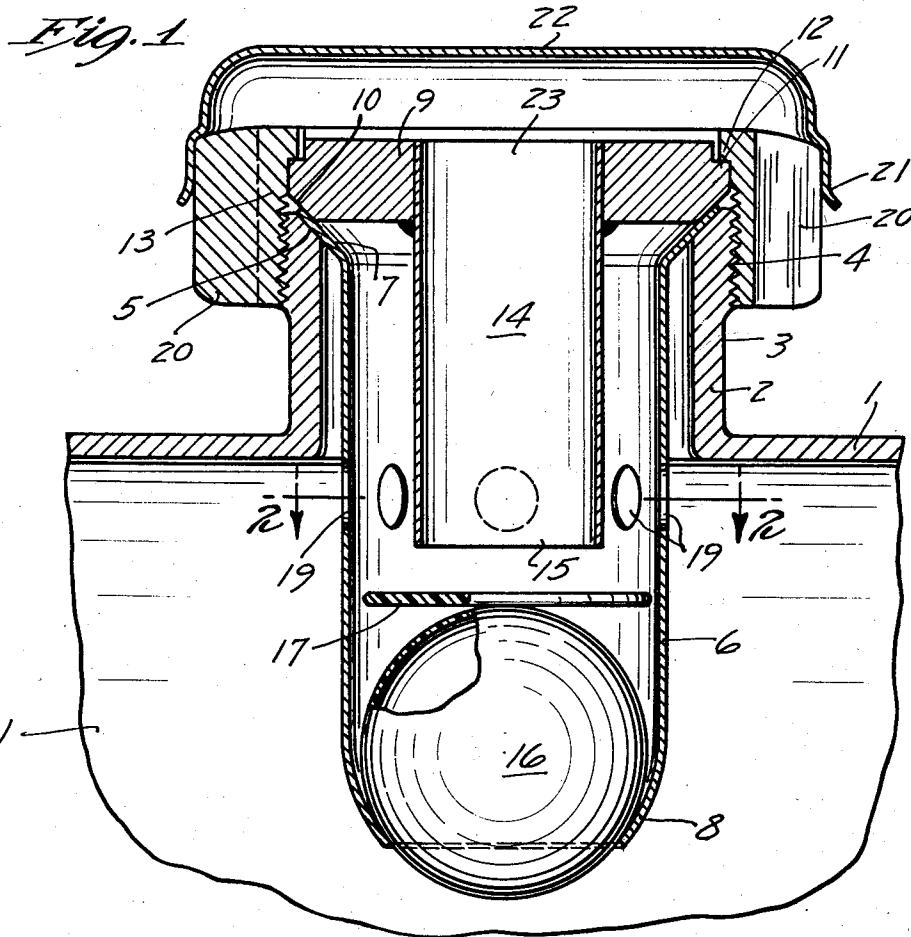
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BREATHER VALVE FOR PORTABLE MILK TANKS AND THE LIKE

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**BREATHER VALVE FOR PORTABLE MILK TANKS
AND THE LIKE**

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1 Claim. (Cl. 137—202)

My invention relates to sanitary vents for fluid containing tanks and, more particularly, to anti-splash fluid type vents for milk transports and the like.

In the transporting of milk or other fluids in large mobile tanks, it has been found desirable and necessary to provide said tanks with venting valves which facilitate the filling and emptying of the same and also to compensate for expansion and/or contraction of the contents, due to changes in temperature thereof.

The primary object of my invention is the provision of a venting valve, for the purpose above described, which is highly efficient and positive in its operation.

A further object of my invention is the provision of a device of the class immediately above described which is relatively inexpensive to produce, and which is extremely durable.

A still further object of my invention is the provision of a device of the class above described which positively precludes the loss of fluid by splash therethrough and which excludes therefrom a maximum of dirt and other extraneous material.

The above and still further objects of my invention will become apparent from the following detailed specification, appended claim, and attached drawings.

Referring to the drawings, wherein like parts are indicated by like characters throughout the several views:

Fig. 1 is a fragmentary view partly in vertical section and partly in side elevation showing my novel structure secured to a conventional portable milk tank, some parts being broken away; and

Fig. 2 is a transverse section of the structure taken substantially on the line 2—2 of Fig. 1.

Referring with greater particularity to the drawings, the numeral 1 indicates a conventional portable tank, formed from stainless steel or the like, and having in its upper wall an upstanding tubular neck 2, the outer edge 3 of which is provided adjacent its upper end with threads 4. The upper edge of the neck 2 defines a frusto-conical seat 5 for a purpose which will hereinafter become apparent. An open ended tubular housing 6 is provided at its upper end with an endless circumferentially extended radially outwardly and upwardly projecting flange 7 which is adapted to be nestingly received upon the seat 5 whereby to vertically position the housing 6 with its diametrically reduced lower end 8 projecting into the interior of the tank 1, above the normal fluid level thereof.

An annular head 9, having a maximum diameter only slightly less than that of the threaded portion 4 of the neck 2, has a frusto-conical portion 10 which is receivable on the flange 7 of the housing 6. Head 9 is likewise provided with a radially extended shoulder 11 for engagement with the annular shoulder 12 of an annular clamping nut 13 which is adapted to have threaded engagement with threads 4 of the neck 2 whereby to cause sealing engagement between the head 9 and the flange 7 and between the flange 7 and the seat 5.

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Rigidly carried by the annular head 9 and depending therefrom into the upper portion of the tubular housing 6 in spaced concentric relationship thereto, is an open ended breather tube 14 the open lower end 15 of which terminates intermediate the flange 7 and the reduced lower end 8 of the housing 6. A buoyant sphere 16, preferably formed from such sanitary material as polyethylene and having a diameter only slightly less than the maximum diameter of the tubular housing 6, is located in said housing 6 intermediate the reduced lower end 8 thereof and the open lower end 15 of the breather tube 14 for unrestricted movements therebetween. Note that the reduced lower end 8 provides a seat for the sphere 16 and limits downward movement thereof. Upward movements of the sphere 16, caused by splash of the milk or other fluid within the tank 1 causes the sphere 16 to close the open lower end 15 of the breather tube 14 through the medium of a valve-acting disc 17 loosely interposed between said sphere 16 and said lower end 15 and normally resting upon and freely movable with said sphere 16. As shown, the disc 17 is only of slightly less diameter than the tubular housing 6 and hence of sufficiently greater diameter than the breather tube 14 to close the lower end 15 thereof when elevated into engagement therewith by the buoyant sphere 16. The fact that the disc 17 is only of slightly less diameter than the housing 6, assures its being maintained in a substantially horizontal position as only its center is in engagement with the ball 16. Also, preferably the disc 17 is formed from polyethylene or other similar sanitary and buoyant material. It should be obvious that any splashing of the milk or other fluid within the tank 1 which is sufficiently violent to cause the buoyant sphere 16 and disc 17 carried thereby to rise within the tubular housing 6, will automatically seal off or protect the open lower end 15 of the breather tube from said fluid passing upwardly therethrough. To insure the equalizing of any partial vacuums or pressures within the tank 1, relative to the atmosphere exterior thereof, the tubular housing 6 is provided with a plurality of circumferentially spaced openings 19 which communicate between the interior thereof and the interior of the tank 1. It will be noted that the openings 19 are above the level of the lower open end 15 of the breather tube 14. This arrangement positively prevents fluid splashed therethrough from the interior of the tank 1, from escaping through the breather tube 14.

Preferably and as shown, the nut 13 is provided with a plurality of radially projecting circumferentially spaced ears 20 for the reception of the spring acting lower end portion 21 of a conventional dust cap 22. The intermittent spaces, not specifically numbered, between the ears 20 provide air passage between atmosphere and the open end 23 of the breather tube 14.

My invention has been thoroughly tested and found to be completely satisfactory for the accomplishment of the above objects, and while I have disclosed a preferred embodiment thereof, it should be obvious that same is capable of modification without departure from the scope of the appended claim.

What I claim is:

A sanitary vent for a transportable milk tank having an upstanding neck in its upper walls, the improvement comprising a tubular valve housing mounted in said neck and having the upper end thereof in sealing engagement with the neck, the lower end of the valve housing having a substantially spherical seat therein, a breather tube suspended in said valve housing spaced from the inner wall thereof and terminating short of the lower end thereof, means forming a sealing engagement between said housing and said breather tube, a buoyant sphere freely sup-

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ported in said housing on said spherical seat and movable toward and away from said spherical seat to cause closing and opening thereof, a freely movable disc between said sphere and said breather tube and movable with said sphere to close said tube upon abnormal rise of fluid within the tank, said breather tube being provided with an annular flange engaging the annular flange on the housing, and means engaging the neck and the annular flange on the breather tube, clamping said last-mentioned flange and the flange on the housing to the seat in the neck. 5 10

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References Cited in the file of this patent

UNITED STATES PATENTS

783,493	Wood	Feb. 28, 1905
785,594	Crispin	Mar. 21, 1905
2,528,600	Lombard	Nov. 7, 1950
2,655,171	Cantor	Oct. 13, 1953

FOREIGN PATENTS

669,998	France	Aug. 12, 1929
814,549	Germany	Sept. 1951