April 16, 1940. A. TERKEL 2,197,352

VENTED VALVE

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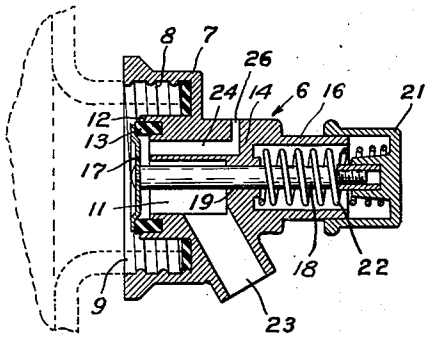

Fig. 1.

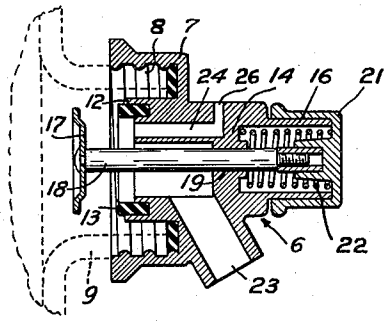

Fig. 2.

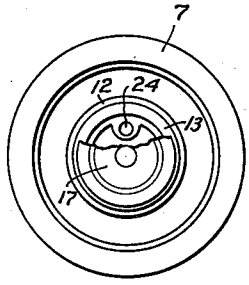

Fig. 3.

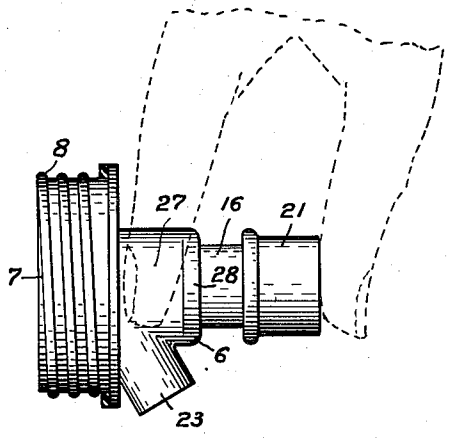

Fig. 4.

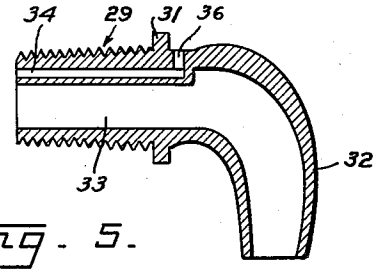

Fig. 5.

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VENTED VALVE

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6 Claims. (Cl. 221—28)

This invention relates to a vented valve for containers.

The primary object of the invention is to provide a vented valve or closure which is adapted to be readily attached to the outlet of a container, vessel, bottle or the like in such a manner as to act as a vented spout for the controlled discharge of fluid from said container.

Another object of the invention is to provide a vented valve which is adapted to act as a closure for a vessel or bottle or the like container, and which is provided with means to simultaneously open and close a fluid passage and an air vent through the valve, said valve being so arranged that it can be readily manipulated by one hand for pouring out the contents of the container.

Another object of this invention is to provide a vented valve which is highly useful and simple in construction. Convenience of arrangement, lightness and comparative inexpense of manufacture are further objects which have been borne in mind in the production and development of the invention.

I am aware that some changes may be made in the general arrangements and combinations of the several devices and parts, as well as in the details of the construction thereof without departing from the scope of the present invention as set forth in the following specification, and as defined in the following claims; hence I do not limit my invention to the exact arrangements and combinations of the said device and parts as described in the said specification, nor do I confine myself to the exact details of the construction of the said parts as illustrated in the accompanying drawings.

With the foregoing and other objects in view, which will be made manifest in the following detailed description and specifically pointed out in the appended claims, reference is had to the accompanying drawing for the illustrative embodiment of the invention, wherein:

Figure 1 is a sectional view of my vented valve showing the same in closed position.

Figure 2 is a sectional view of my vented valve showing the same in open position.

Figure 3 is an end view of my valve, the disc valve being partly broken away to expose to view the air vent.

Figure 4 is a side view of my valve.

Figure 5 is a sectional view of a vented spout constructed in accordance with my invention.

In its general organization my invention includes a valve body which has an end that fits over the outlet of a container, for instance over the mouth and neck of a bottle or the like, a fluid passage through said body which extends from said end of the valve body to an outlet spout, an air vent conduit which extends from the intake end of the fluid passage to the exterior of the body, and a valve common both to the fluid passage and to the air vent conduit to simultaneously open and close both. The body of the valve is preferably so constructed that the valve may be held between the index and middle fingers of the hand and the outer end may be pressed by the thumb of the same hand for engaging a valve actuating element thereat.

In detail my invention includes a tubular valve body 6 around an open end of which is a cup shaped securing flange 7 which latter is threaded at 8 either internally as in Fig. 1, or externally as in Fig. 4 or otherwise adapted to be secured over the outlet 9 of a container such as a bottle or vessel, so as to locate said tubular valve body 6 in said outlet 9. Through the open end adjacent the flange 7 is formed a passage 11 for flow of fluid. In a rim 12 of the open end of the valve body 6 is a packing made of rubber or other compressible material which forms a valve seat 13. The other end of said valve body 6 is closed by a wall 14 on the outside of which latter is a cylindrical, hollow guide projection 16.

The disc valve 17 fits over the valve seat 13. A valve stem 18 extends from the disc valve 17 through an aperture 19 in the end wall 14 of the valve body 6 and into the interior of the hollow guide projection 16. On the outer end of the valve stem 18 is threadedly secured a thumb head 21 which latter is hollow and is so shaped as to slidably fit over the exterior of the guide projection 16. A coil spring 22 in the recess of the guide projection 16 and around the stem 18 bears at one end against the wall 14 and at the other end against the inner face of the head 21 so as to normally urge the head 21 outwardly and away from said body 6 thereby to seat the valve 17. In order to unseat the valve 17 it is only necessary to press the head 21 toward the body 6 and against the action of the spring 22.

The passage 11 for the fluid is continued at an angle so as to form a lateral spout 23 at one side of the body 6. Along the wall of the passage 11 opposite to the side where the spout 23 is located is a conduit 24 preferably formed integral with the interior of the valve body 6. This conduit 24 extends from the intake end of the valve passage 11 to a point beyond the cup flange 7 and then to the outside of the body 6 at a point

26 substantially diametrically opposite to the location of the spout 23.

The exterior of the valve body 6 is so formed as to facilitate the manipulation of the valve and also in some instances the tilting of the bottle or container with one hand if so desired. Particularly the exterior of the body 6 outside of the flange 7 is flattened on diametrically opposite sides 27 so that the spout 23 is located between the planes of the flattened sides. However the adjacent shoulder 28 of the body 6 is left cylindrical so as to form a narrow rim flange at the outer end of each flattened side 27 against which the fingers holding on said flattened sides 27 may bear as the thumb is being pressed against the head 21 for opening the valve. This also allows a firm grip on the valve.

In the form shown in Fig. 5 an outlet body 29 is exteriorly threaded or otherwise adapted to be secured onto a container outlet, so that the flange 31 limits the entry of the body 29 into the outlet of a container. The outer end of the outlet body 29 is curved to form a spout 32 at an angle to the outlet passage 33 of the same. An air conduit 34 is formed integrally with the wall of the passage 33 on a side opposite to the direction of the spout 32. The air conduit 34 extends from the intake end of the fluid passage 33 and communicates with the atmosphere at a point 36 beyond and outside of the flange 31.

It is to be noted that it is preferable to have the air vent extend along the inside of the fluid passage on a side opposite to the direction of the spout. Thus when fluid flows toward the spout in the natural position of the spout pointing downwardly then the tendency of the fluid is to flow along a side of the passage below the air conduit. At any rate the aforesaid relative position facilitates the venting action of the air conduit. It is also to be noted that the air conduit extends from the point of intake of the valve to an outside point which latter is always outside of the container by reason of its relative position to the secured end of the valve. Furthermore the opening or closing of the valve on its seat automatically opens and closes not only the fluid passage but also the air vent by the same movement of the same valve member, in this instance a disc valve. The valve may be readily secured to the vessel or receptacle and thereafter it is easily manipulated with one hand as shown.

What I now claim and desire to secure by Letters Patent is:

1. A closure for an outlet comprising a hollow valve body having an intake passage, a spout on one side of said body connected to said intake passage, an air conduit extended from the intake end of the intake passage to the outside of the body on the side of the passage substantially opposite to the spout, and a valve common to the intake end of said passage and to said air vent.

2. A vented outlet device comprising a tubular member, means to secure said member to the outlet of a container, a spout formed on said tubular member in communication with the passage of said member, and an air conduit extended from the intake end of the passage of said member to the exterior of said member outside said securing means, and a valve to simultaneously cover the adjacent ends of said passage and of said air conduit.

3. A vented outlet device comprising a tubular member, means to secure said member to the outlet of a container, a spout formed on said tubular member in communication with the passage of said member, and an air conduit extended from the intake end of the passage of said member to the exterior of said member outside said securing means, a valve to simultaneously cover the adjacent ends of said passage and of said air conduit, and resilient means to normally hold the valve in closing position.

4. A vented valve comprising a body having a fluid passage, a side spout connected to the fluid passage, an air conduit extended from the intake end of the fluid passage to the exterior of said body, a disc valve to simultaneously cover the adjacent ends of the passage and of said conduit, a valve stem axial to said body extended from said disc valve through the wall of said body, a guide on the outside of said body, a head on the valve stem slidable on the guide, a spring to normally urge the head into valve closing position, and means to attach the body to a container.

5. In a closure for an outlet the combination with a hollow valve body with a spout to one side of said body and a substantially axial passage from the intake end of said body to the spout; of an air conduit extended from the intake end of said passage to the outside of said body in substantial parallelism with said passage and on the side substantially opposite to said spout, and a valve for simultaneously covering and uncovering the intake end of said passage and the inner end of said air conduit.

6. In a dispensing closure for an outlet, the combination with the hollow body of the closure adapted to be secured to the outlet of a container and having its outer end closed, a spout on one side of the body, a valve on the open end of the body and a valve actuating element extended beyond the closed end of the body; of opposed reduced exterior portions on the exterior of said valve body spaced from the outer end of the valve actuating element and conforming to the usual gripping surface between adjacent fingers of a hand so as to accommodate the gripping of the closure between two fingers with a third finger of the same hand in position to operate said valve actuating element by pressing at its outer end.

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