April 23, 1935. A. L. MAGGENTI 1,998,586

DISPENSING VALVE

Original Filed March 17, 1933

Fig. 3.

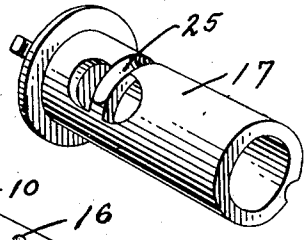


Fig. 4.

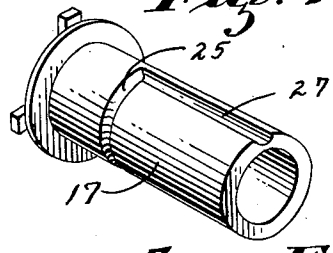


Fig. 1.

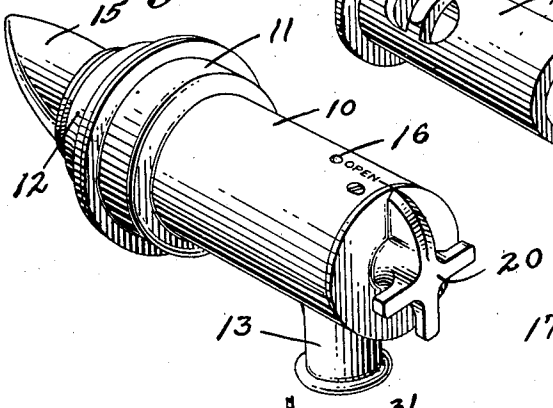


Fig. 5.

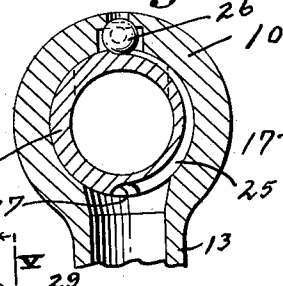


Fig. 6.

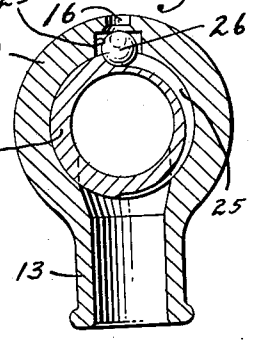


Fig. 2.

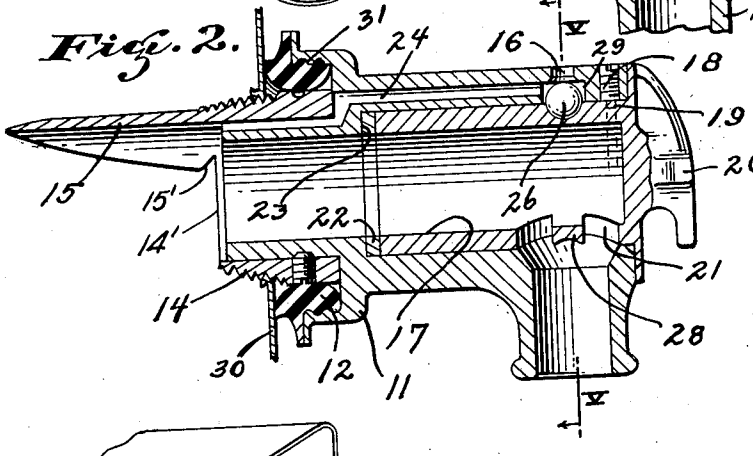


Fig. 8.

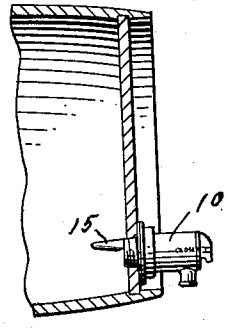


Fig. 7.

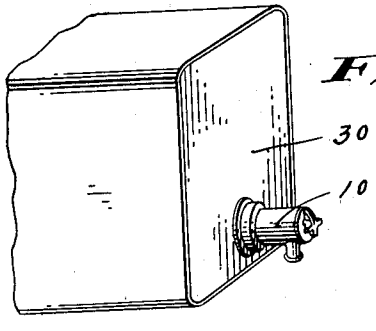


Fig. 10.

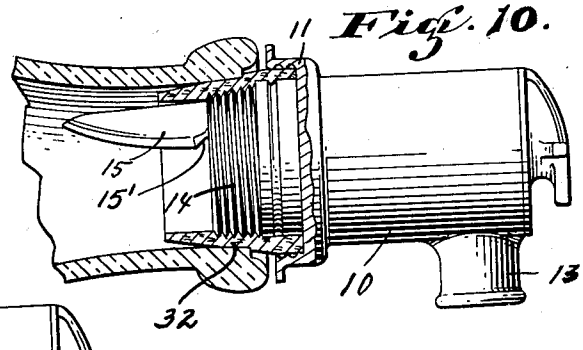
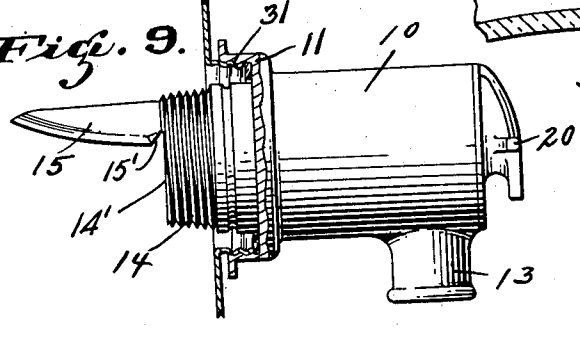


Fig. 9.



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Patented Apr. 23, 1935

1,998,586

UNITED STATES PATENT OFFICE

1,998,586

DISPENSING VALVE

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Application March 17, 1933, Serial No. 661,233
Renewed January 26, 1935

7 Claims. (Cl. 221—23)

My present invention relates to a new and improved valve or tap for withdrawing a fluid from a sealed container and more particularly to a vented tap for use with a metallic container such as is permanently sealed at the source and has no removable cap or other form of dispensing outlet.

An object of my invention is to provide a new, novel and improved tap for a sealed container having a vent that is automatically opened and closed as the tap is respectively opened and closed.

Another object of my invention is to provide upon a tap for a metallic container means whereby the tap may be readily mounted in a wall of the container at any desired point.

Another object of my invention is to provide a new and novel type of metal cutting and screw threaded attaching means for taps such as are used for dispensing fluids from metallic containers.

A further object of my invention is to provide a novel form of sealing means for use with the threaded connecting extension of my improved tap.

Other objects and advantages of my present invention will be in part pointed out and in part evident to those skilled in the art as the following description thereof proceeds.

For the purpose of facilitating an understanding of my invention I have shown in the accompanying drawing, by way of illustration and not of limitation, a preferred embodiment thereof.

In the drawing wherein like numerals refer to like parts throughout the several views:

Figure 1 is a perspective view of the tap,

Figure 2 is a sectional view taken along a vertical plane extending through the center of the tap,

Figures 3 and 4 are perspective views showing the valve element in two positions,

Figures 5 and 6 are sectional views taken along V—V of Figure 2 showing the valve member respectively in its closed and open positions,

Figure 7 shows my improved tap applied to the end of a metallic container,

Figure 8 is a fragmentary sectional view showing the tap applied to the head of a barrel,

Figure 9 is a fragmentary view partially in section showing the manner of mounting the tap upon a container having a conventional screw cap closure, and

Figure 10 shows an adaptation of my improved tap to the neck of a bottle.

As illustrated in the accompanying drawing, the preferred form of my invention comprises a tap or valve having a cylindrical body member 10, upon one end of which there is provided an annular cupped flange 11 that will support a suitable gasket 12 of rubber or other compressible material. At its other end the body member 10 is provided with a spout 13 through which fluid will be discharged when the tap is open. Mounted upon the body member 10 and projecting beyond the flange 11, there is a tapered and threaded extension 14 which carries an arcuately shaped bayonet 15. The bayonet 15 is sharpened along both edges and is adapted to perforate and form a round hole in a container when turned therein.

The threaded extension 14 and the bayonet 15 are preferably formed of a single piece of steel. The threaded portion of the extension 14 is tapered considerably more than is the practice in pipe threading and the bayonet 15 has its outer surface disposed in substantial alignment with the root of the first screw thread at its base. A further and important feature of the bayonet 15 is that its cutting edges are formed by grinding away the outside so that its cutting edge will move in a circle of smaller diameter than its outer surface. As shown in the drawing, the bayonet 15 has an undercut portion 15' at the base of its cutting edges where it engages the threaded portion 14. This undercut portion 15', when in operation, tends to draw the bayonet 15 inwardly into the container and hold the abutting remaining portion of the threaded extension 14 into close engagement with the wall of the container and, because of the disposition of the threads, insures a progressive entrance of the threaded portion of the tap body into the wall of the container, as the tap body is turned to move the bayonet 15 in a circle. The end of the threaded extension 14, from which the bayonet 15 extends, is disposed at a right angle to the axis of the bayonet and forms a shoulder 14' at each side of the bayonet which will engage the wall of the container, when the bayonet has been projected therethrough, and hold the bayonet perpendicular to the container wall and thus cause it to travel in a circle corresponding to the curvature of the bayonet. This type of bayonet and threaded extension will cause the metal wall of the container to be rolled back as a hole is cut therein and thus provide metal upon which threads will be formed by the extension 14.

In the top of the valve body 10, opposite the spout 13, there is a small air vent 16 for the purpose of permitting the entrance of air into a

sealed container when the tap is applied thereto, as will hereinafter appear.

Cooperating with the spout 13 there is provided a hollow cylindrical valve member 17 which is clearly illustrated in Figure 2 of the drawing. This valve member 17 is inserted into one end of the body member 10 and is held in place by means of a set screw 18 which engages a groove 19. A handle 20 is formed upon the end of the cylinder to facilitate a turning thereof. The inner end of the valve member 17 is open and at a point adjacent the spout 13 it is provided with a port 21, through which fluid may pass when the valve member 17 is in its open position. At the inner end of the valve member 17 there is a packing washer 22 which abuts against a shoulder 23 and prevents the escape of fluid around the outside of the valve member 17. As illustrated in this figure of the drawing, the body member 10 is also provided with a small conduit 24 which is adapted to connect the air vent opening 16 with the interior of a container when the tap is in use.

Disposed beneath the vent opening 16 and resting in an eccentrically located groove 25 upon the valve member 17, there is a ball valve 26 which is adapted to open and close the vent opening 16 when the tap is respectively opened and closed. As illustrated in Figures 3 and 4 of the drawing, the groove 25 is formed at a point in line with the vent opening 16 and is so disposed eccentrically with respect to the axis of the valve member 17 that the ball valve 26 will be moved radially as the valve member 17 is rotated. At the deepest end of the groove 25, there is provided upon the valve member 17 an axially extending groove 27 which will permit an assembly of the parts when the ball valve 26 is placed in position.

The positions of the ball valve 26 and the disposition of the eccentric groove 25 are illustrated in Figures 5 and 6 of the drawing, wherein the parts are shown in the tap closed and opened positions. When the tap is fully opened the ball valve 26 will lie in the deep end of the concentric groove 25, as shown in Figure 6 of the drawing, and as a result the vent opening 16 will be opened to permit a flow of air into the container as the liquid is withdrawn therefrom. This operation presupposes that the container is sealed air tight above the liquid level. Should the container have a separate vent the liquid will flow out through both the spout 13 and the vent opening 16. However, the flow of liquid through the vent opening 16 can be prevented by turning the valve member 17 slightly beyond its full open position. This additional movement of the valve member 17 will lift the ball valve 26 up and close the vent opening 16 without materially reducing the flow of liquid through the spout 13. The eccentric groove 25 is extended around one half of the valve member 17 and therefore, to prevent an escape of the ball valve 26, the groove is carried over the port 21 by means of a bridge 28. The bridge 28 can be dispensed with when the groove 25 is disposed along the valve member 17 at a point axially displaced from the port 21. However, the present location of the groove 25 is the most convenient, from a manufacturing point of view, as it will permit a working through the spout 13 when drilling the vent and milling a cavity 29 in which the ball valve 26 is disposed.

After the tap has been assembled, as described above, it can be readily applied to the wall of a sheet metal container by pushing the bayonet 15 through the metal and turning it so as to cut a round hole in the container. After the hole has been thus formed the tap can be screwed into the opening by continuing the turning operation. This will cause the threaded extension to engage the sides of the opening and thus secure the tap in place. As the tap is thus screwed into the container the packing gasket 12 will be pressed into sealing engagement with the wall of the container at a point in spaced relation with the opening and thus the tap will be effectively secured and sealed to the container.

In Figure 7 of the drawing, I have shown my improved tap as applied to the end wall 30 of a square container such as is used for dispensing oil and other commodities. While my tap is primarily intended for containers which are permanently sealed at the source and have no conventional outlet it is to be understood that the arrangement and dimensions of the several parts are such that the tap may be applied to many other forms of containers, for instance, as shown in Figure 8, the threaded extension can be screwed into the end of a barrel or other wooden cask.

It is also contemplated that the tap may be used on containers having the conventional screw cap closure as is illustrated in Figure 9 of the drawing. Therefore, I have provided my tap with a conventional screw cap thread 31 upon the inside of the cupped flange 11 so that when the packing gasket 12 is removed the tap can be conveniently applied to the screw cap spout of the container.

Another application of my improved cap is in the neck of a bottle, as illustrated in Figure 10 of the drawing. When the tap is thus used it will be provided with a sleeve 32 of cork or other material instead of the packing gasket 12.

While I have, for the sake of clearness and in order to disclose my invention so that the same can be readily understood, described and illustrated a specific device and arrangement, I desire to have it understood that this invention is not limited to the specific means disclosed but may be embodied in other ways that will suggest themselves, in view of this broad disclosure, to persons skilled in the art. It is believed that this invention is broadly new and it is desired to claim it as such so that all changes as come within the scope of the appended claims are to be considered as part of this invention.

Having thus described my invention, what I claim and desire to secure by Letters Patent is—

1. In a vented tap valve, the combination of a body member adapted to be attached to a fluid container, said body member having a spout on its lower side and a vent opening opposite said spout, a hollow cylindrical valve member having an aperture adapted to align with said spout to provide a fluid passageway through the valve, a conduit independent of said fluid passageway communicating with said vent opening and terminating adjacent the valve inlet, and a means operated by said cylindrical valve member for opening and closing said vent opening when the cylindrical valve member is respectively in its open and closed positions.

2. In a vented tap valve, the combination of a body member adapted to be attached to a fluid container, said body member having a spout opening along its lower side and a vent opening opposite said spout opening, a hollow cylindrical valve member having an aperture adapted to align with said spout opening to provide a fluid passageway through the valve, a conduit independent of said fluid passageway communicating with said vent opening and terminating ad-

jacent the valve inlet, and a ball valve operated by said cylindrical valve member for opening and closing said vent opening when the valve member is respectively in its open and closed positions.

3. In a vented tap valve, the combination of a body member, said body member having a spout opening and an air vent opposite said spout opening, a valve member having an aperture adapted to align with said spout opening to provide a fluid passageway through the tap, a conduit independent of the fluid passageway leading to said vent opening and adapted to communicate with the interior of a fluid container above the tap inlet, and a means operated by rotation of said valve member for opening and closing said air vent when the valve member is respectively in its open and closed positions.

4. In a vented tap valve, the combination of a body member adapted to be attached to a fluid container, said body member having a spout opening and an air vent opposite said spout opening, a cylindrical valve member having an aperture adapted to align with said spout opening to provide a fluid passageway through the tap valve and having an eccentrically disposed groove extending around its exterior surface, a conduit independent of said fluid passageway communicating with said vent and terminating adjacent the valve inlet where it will communicate with the interior of a container when the tap is in operation, and a ball valve disposed in the groove about said valve member adapted to open and close said air vent as the valve member is rotated respectively to its open and closed positions.

5. In a dispensing tap for a metallic container, the combination of a tap body having an outlet spout, a screw threaded extension at the base of said tap body for attaching it to the wall of a metallic container, and a tapered bayonet like member of arcuate cross section at its base projecting outwardly at one side of and beyond a small portion of the end of said screw threaded extension adapted to punch a small arcuate aperture in the wall of the container when pressure is applied thereto, the remaining portion of said threaded extension forming a shoulder which will engage the wall of the container and the arcuate length and the curvature of said bayonet being such that when said shoulder is disposed against the container and a turning movement is imparted thereto the bayonet will move in a true circle and cut a round hole in the wall of the container into which said screw threaded extension may be turned.

6. In a dispensing tap for a metallic container, the combination of a tap body, a threaded extension projecting outwardly from the base of said tap body, and a bayonet at one side thereof which can be punched through the wall of the container and turned to cut a round hole therethrough, said bayonet having an undercut edge disposed adjacent the end of the first thread upon said threaded extension so that when the bayonet is turned in the wall of the container to cut said round hole the threads upon said threaded extension will progressively engage the periphery of said hole and form a thread like connection between the threaded extension and the wall of the container.

7. A tap outlet for a metallic container comprising, a tap body having a threaded extension at the base thereof, and a bayonet extending from one side of said threaded extension adapted to perforate the wall of a metallic container, said bayonet being undercut and sharpened at its base and the disposition of the threads upon said threaded extension being such that the first thread at the end of said extension will progressively engage the wall of the container as the bayonet is turned to cut a round hole therein.

ALBERTO LOUIS MAGGENTI.