O. BERNZ.

FILLING FUNNEL PLUG.

APPLICATION FILED NOV. 30, 1914.

1,234,268. Patented July 24, 1917.

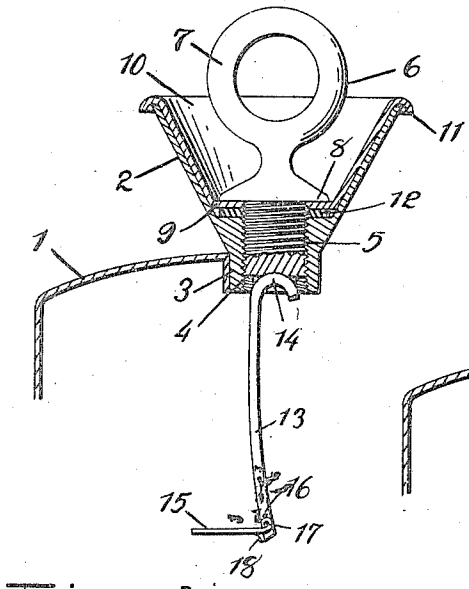


Fig. 1.

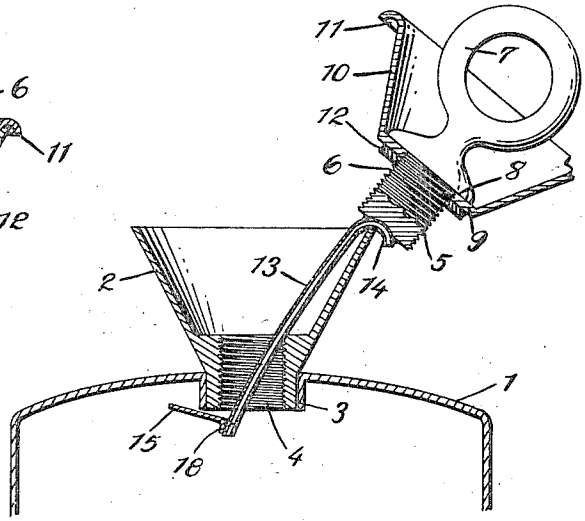


Fig. 2.

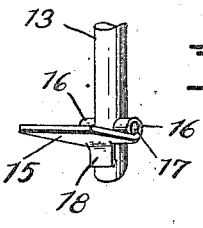


Fig. 3.

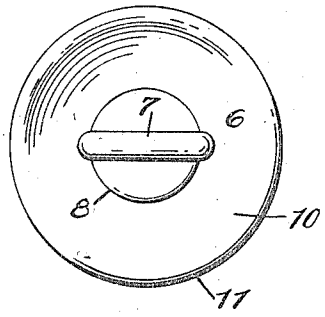


Fig. 4.

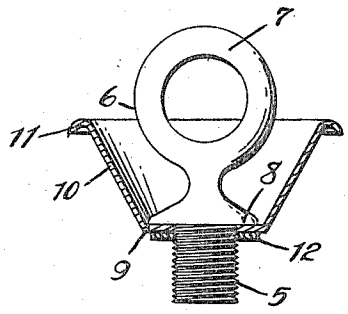


Fig. 5.

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FILLING-FUNNEL PLUG.

1,234,268. Specification of Letters Patent. Patented July 24, 1917.

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To all whom it may concern:

Be it known that I, OTTO BERNZ, a citizen of the United States, and a resident of Newark, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in Filling-Funnel Plugs, of which the following is a specification.

This invention relates to filling funnels such as are employed on the reservoirs or tanks of plumbers' torches, furnaces and the like for the purpose of pouring gasolene or other fluid thereinto, the funnel being fixed or stationary on the tank, reservoir or the like and threaded at its small end to receive a closing plug. It is well-known in the trade, dirt accumulates in the funnel while the torch or other article is being used, and when the plug is removed and gasolene or the like poured in it washes such dirt into the tank or reservoir. The dirt thus passing into the reservoir is liable to clog the burner or be otherwise objectionable, as will be understood.

The objects of the invention are to prevent dirt from collecting in such a filling funnel; to position and remove the protector by means of the filling plug; to maintain the appearance of a funnel and avoid bulkiness; to leave the walls of the protector which engage the funnel free and unconnected transversely thereof; to provide means for supporting the plug while refilling the reservoir; to conduct air out of the reservoir, or vent it, during refilling; to secure simplicity of construction and operation, and to obtain other advantages and results as may be brought out in the following description.

Referring to the accompanying drawings, in which like numerals of reference indicate the same parts throughout the several views,

Figure 1 is a sectional view through a filling funnel having seated therein a plug made in accordance with my invention;

Fig. 2 is a similar view showing the plug in position for refilling;

Fig. 3 is a detail illustration of means for preventing complete removal of the filling plug away from the tank or reservoir.

Fig. 4 is a plan view of the plug; and

Fig. 5 is a sectional view of a filling plug from which the support and vent means are omitted.

In the specific embodiment of the invention illustrated in said drawings, the reference numeral 1 indicates a reservoir for any fluid, such as gasolene, said reservoir being provided with a filling funnel 2. Said funnel as here shown has its bottom or small end 3 permanently seated or fixed in an aperture in the wall of the tank and interiorly screw-threaded as at 4 for the reception of the threaded shank 5 of a screw plug 6. Said screw plug 6 is provided with a suitable handle or grip-piece 7 for conveniently manipulating the same, preferably adapted to enter, or partially enter, the filling funnel 2, and at the intersection of the handle and shank is a transverse shoulder 8 of greater diameter than the threaded shank. The threaded shank 5 of the screw plug projects through a suitable aperture in the bottom 9 of a protector 10, the shoulder 8 of the shank resting against the inside of the bottom 9 and being secured thereto in any suitable manner, such as by soldering. Preferably this protector 10 is made of sheet metal, to conform to the shape of the inside of the funnel, and the handle 7 is thus within or partially within said protector, as shown. Obviously the protector 10 will be removed from and applied to the funnel with the filler plug 6 when the same is removed or inserted in place, and as the plug is only removed for short periods when the tank is being filled or the like, the protector remains upon the funnel practically all the time and catches the dirt which would otherwise get into said funnel and be washed into the reservoir as the latter is filled. Preferably, for this reason, the protector 10 fits closely within the funnel and curls circumferentially over the top edge thereof, as at 11, see Fig. 1, so that no foreign matter will settle or work in between the two parts.

It will be noted that the protector is secured to the filling plug only at the edges of its bottom aperture which receives the filling plug, and that the walls of the protector which are adapted to cover the interior of the funnel are otherwise free not only from the filling plug but also from any connection or bracing whatever transversely of the funnel. This leaves the protector, which is made of light sheet metal, free to yield or change its shape somewhat to engage the funnel, as for instance if the funnel had received a dent or blow which made it other than of true circular circumference. Obviously under such conditions, the walls of the protector of my improved construction

could spring more or less with respect to the funnel.

A washer 12 is shown on the threaded shank 5 of the screw plug, below the protector 10, to obtain a tight closure.

Referring especially to Figs. 1 and 2, I have shown depending from the bottom of the shank 5 of the screw plug 6 a refill vent tube 13. This tube is given a crook 14 or curved back on itself at its upper end so as to open downwardly, and is shown secured to the plug at the rounded end thus provided, preferably by soldering. However, the crook 14 is of small enough radius of curvature so that the tube does not project radially of the threaded shank 5 beyond the same, and thus does not interfere with the insertion and removal of the screw plug. Obviously when the plug is screwed into place the tube 13 lies entirely within the reservoir, so that no leakage or escape of the contents of the reservoir results. When the screw plug is removed for refilling the tank, the tube 13 is of course drawn upwardly through the threaded small end 3 of the filling funnel, and allowed to rest within the funnel 2 with its crook 14 hooked over the upper edge of the funnel, as shown in Fig. 2. It is preferable to have the tube not much longer than the depth of the funnel, so that the lower end of said tube projects just inside of the reservoir when the upper end is hooked over the top of the funnel.

As the reservoir is filled with fluid, the vent tube forms a free passage for the escape of the displaced air or other gas, so that said air or gas does not have to bubble up through the entering fluid and spatter it. Furthermore, the tube provides adequate means for supporting the plug upon the funnel during filling, so that it does not become necessary to lay said plug down, whereby dirt might adhere thereto and be carried into the reservoir sooner or later, or the plug be lost. I provide, therefore, not only means on the plug for keeping the filling funnel clean, but also other means to keep the first-mentioned means from becoming soiled or dirty.

In furtherance of this, means are preferably provided for preventing the plug from being completely removed from the filling funnel by the bent tube 13 passing clear up through the threaded small end 3 of the filling funnel, and as an illustration of such means I have shown a detent 15 hinged to the lower end of the tube so as to readily pass into the reservoir but prevent outward escape. As shown, this detent comprises a piece of sheet metal with ears 16, 16 adapted to lie on opposite sides of the tube 13 and receive a hinge pin 17 through said tube, a tongue 18 between said ears being bent out to lie against the tube as a stop and hold the body part of the detent at an angle to the tube. Any other suitable construction adapted to the purpose might be employed however, and in fact various modifications may be made in the manufacture of my device without departing from the spirit and scope of the invention. I therefore do not wish to be understood as restricting myself except as required by the following claims when construed in the light of the prior art.

Having thus described the invention, what I claim is:

1. The combination with a filling funnel plug having a threaded portion adapted to screw into the bottom opening of the funnel and a handle portion adapted to be centrally disposed in the funnel at a distance from the walls thereof, of a protector adapted to lie inside the funnel and cover the walls thereof, said protector being apertured centrally of its bottom to receive the filling plug and secured thereto at the edges of said aperture, the walls of the protector which are adapted to engage the funnel otherwise free and unconnected transversely of the funnel.

2. The combination with a filling funnel plug having a reduced threaded portion adapted to screw into the bottom opening of the funnel and providing a shoulder above the same, of a protector adapted to fit against the interior of the funnel and having a truncated end apertured to receive the threaded portion of the plug and fit against the shoulder above the same, said protector secured to said plug and projecting therefrom at an angle and adapted to be clamped at its transverse end portion beneath the said shoulder of the plug.

3. The combination with a filling funnel having at its bottom a threaded aperture with an annular shoulder therearound in a transverse plane, and a plug having a reduced threaded portion to screw into the bottom opening of the funnel and an annular shoulder thereabove parallel to the said shoulder of the funnel, of a protector adapted to fit against the interior of the funnel and having a truncated end apertured to receive the threaded portion of the plug and fit against the shoulder above the same, said protector secured to said plug and projecting therefrom at an angle and adapted to be clamped at its transverse end portion between the shoulder of the plug and the bottom of the funnel.

4. The combination with a filling plug, of a vent tube secured to the inner end of said plug, said vent tube having its opposite ends open and being adapted to support the plug when withdrawn and to enter in advance of the plug when the same is inserted.

5. The combination with a filling plug, of a vent tube having a curved end secured to the inner end of said plug so as to leave both ends of the tube open, said vent tube being

disposed longitudinally of the plug with its curved end within the circumference thereof and thus adapted to enter any aperture that the plug will enter.

6. In a filling funnel plug, the combination with a plug, of a vent tube having a hooked end secured to the plug so as to expose both ends of the tube passage, said vent tube extending longitudinally of the plug with its curved end within the circumference thereof so as to enter any aperture which the plug will enter and being long enough so that when the plug is withdrawn the vent tube will at its upper end hook over the outer edge of the filling funnel without withdrawing its lower end.

7. In a filling funnel plug, the combination with a plug, of a vent tube projecting longitudinally from the inner end of the plug and adapted to enter any aperture which the plug will enter, said vent tube having its opposite ends open and being long enough to enable the plug when withdrawn to be hooked over the edge of the filling funnel without withdrawing the lower end of the vent tube.

8. The combination with a filling plug, of a vent tube secured to the inner end of said plug adapted to enter any aperture which the plug will enter, and a hinged stop at the end of said vent tube away from the plug adapted to swing in a direction toward the plug close to the tube and to resist swinging in the opposite direction beyond a position at which it projects outwardly from the tube.

9. The combination with a filling funnel, of a plug for closing the small end of said funnel, a cup-shaped protector carried by said plug adapted to fit within the larger end of the funnel and overlie the upper circumferential edge thereof for excluding dirt from between said protector and funnel, said plug having means for applying the same to said funnel and removing it therefrom, and means for supporting said plug and protector upon the funnel out of contact with any contaminating surface while the plug is removed from said funnel, said means providing a vent for the reservoir while supporting said cap.

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