April 23, 1940. G. S. ROGERS 2,197,987

FUNNEL

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Fig. 2

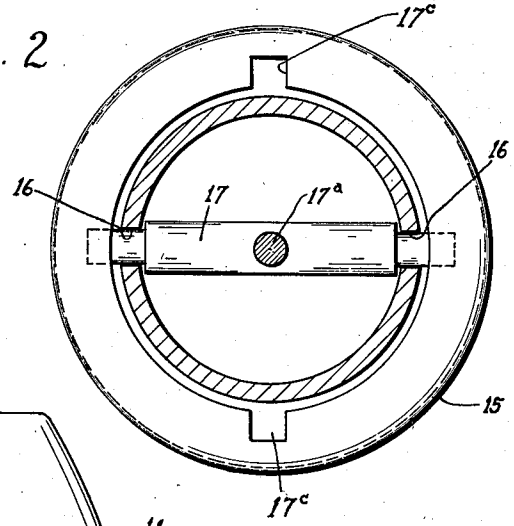


Fig. 1

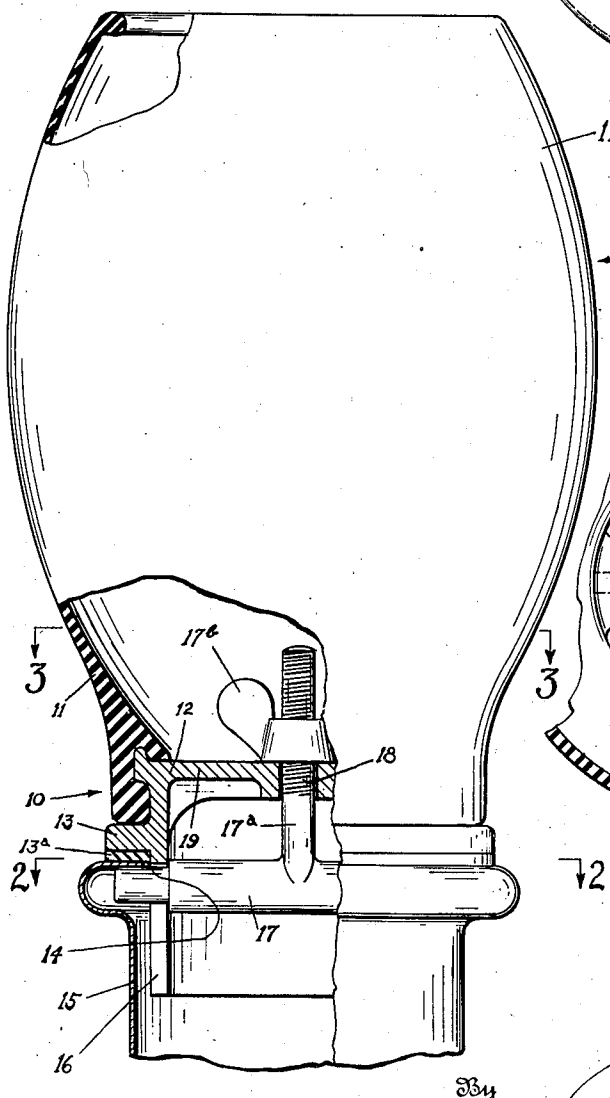
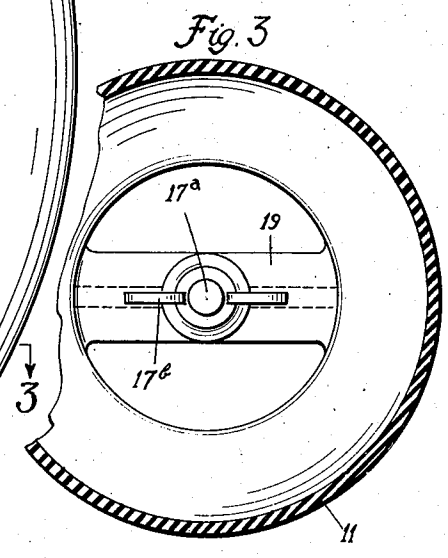


Fig. 3



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Fig. 4

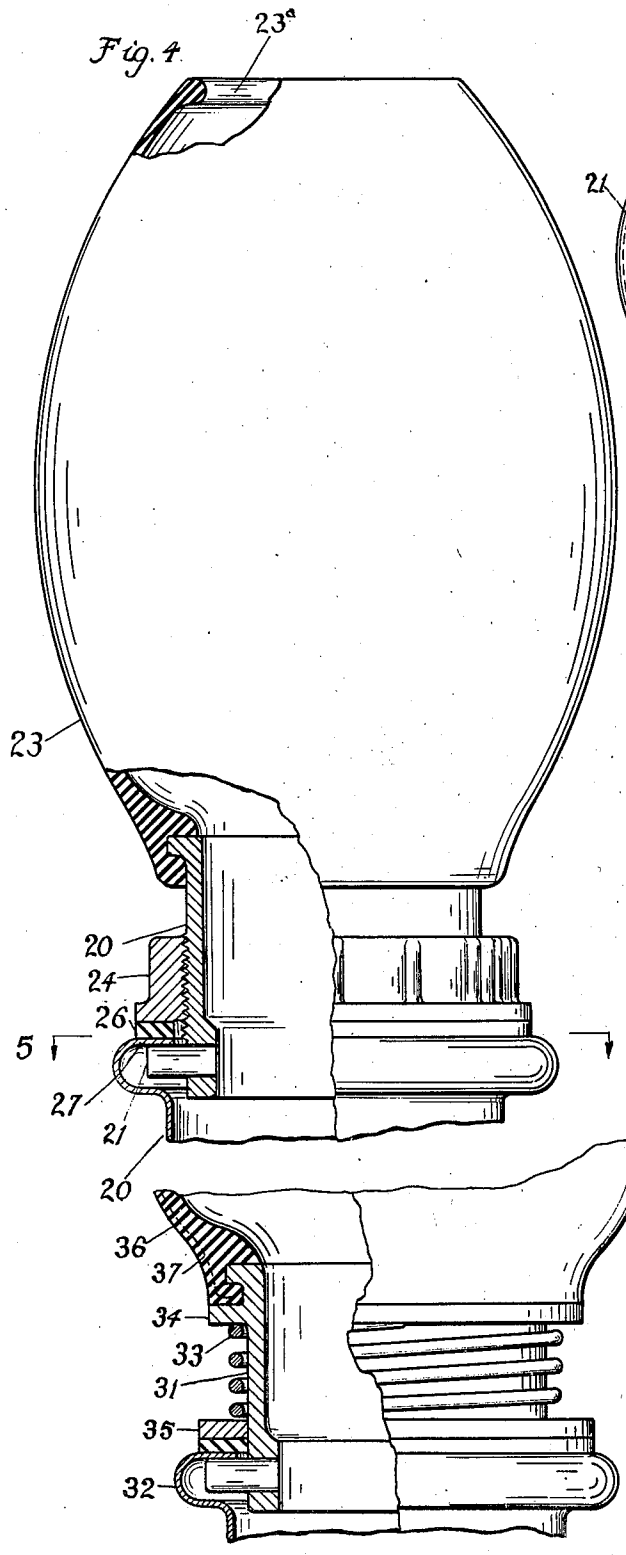


Fig. 5

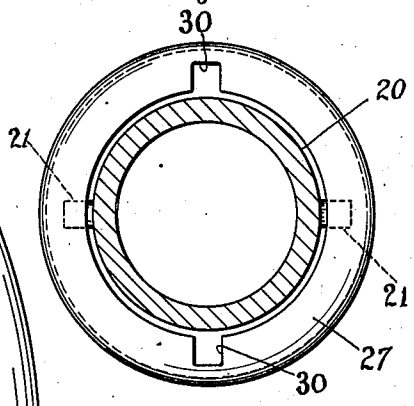


Fig. 6

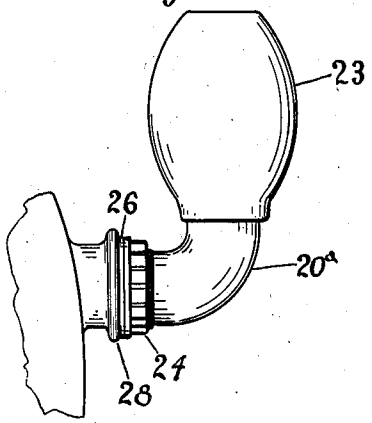


Fig. 7

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UNITED STATES PATENT OFFICE

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FUNNEL

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Application March 18, 1937, Serial No. 131,561

3 Claims. (Cl. 226—31)

This invention relates to funnels such as may be used for filling automobile tanks with motor fuel.

One object of the invention is to provide a funnel of the character described which will retain the motor fuel, displaced by air and vapors within the gasoline tank and fill-pipe thereof, until such time as the air and vapors have had a chance to escape and allow the fuel within the funnel to flow into the tank.

Another object of the invention is to provide a funnel of the character described which seals the mouth of the fuel-tank opening to prevent leakage of overflow between said funnel and said tank opening.

Another object of the invention is to provide a funnel of the character described which is adapted to be quickly removably attached to the bayonet joint attaching means provided for the usual automobile tank closing cap.

Another object of the invention is to provide a funnel construction comprising a body portion of soft, flexible material.

These and other objects are attained by means of the apparatus illustrated in the accompanying drawings and described below. It is to be understood that the invention is not limited to the specific form thereof shown and described.

Of the accompanying drawings:

Figure 1 is an elevational view, partly broken away and in section, of a funnel embodying the invention.

Figure 2 is a cross-section taken on the line 2—2 of Figure 1.

Figure 3 is a cross-section taken on the line 3—3 of Figure 1.

Figure 4 is an elevational view, partly broken away and in section of another embodiment of the invention.

Figure 5 is a cross-section, on a reduced scale, taken on the line 5—5 of Figure 4.

Figure 6 is an elevational view of another embodiment of the invention.

Figure 7 is a fragmentary elevational view, partly broken away and in section, of still another embodiment of the invention.

Referring to Figures 1, 2, and 3 of the drawings, 10 is a funnel having an enlarged receptacle 11, which may be of suitable natural or synthetic rubber or rubber and fabric construction, and which may have a downwardly extending sleeve 12 on its lower end provided with a flange 13 thereon. The flange 13 preferably has a sealing gasket 13a thereunder for sealing the filling opening 14 in the fill-pipe 15 of a fuel tank (not shown).

The sleeve 12 in this form of the invention has a pair of oppositely disposed slots 16, 16 adapted to slidably receive a pin 17, which has its ends extending exteriorly of the sleeve 12 to provide a bayonet connection for the usual bayonet joint attaching means provided for automobile tank closing caps. For providing adjustability of the pin 17, the latter may have attached thereto an upwardly extending pin 17a adapted to be received through an opening 18 in a cross-bar 19, which is attached to the funnel 10. The free end of the pin 17a is threaded to receive a wing-nut 17b.

In practical use of the funnel shown in Figures 1, 2, and 3, the wing-nut 17b is first released to provide sufficient space between the flange 13 and pin 12, so that the ends of the pin 17 may be engaged with the bayonet connection provided for the usual tank closing cap of an automobile having suitable bayonet slots 17c, 17c. This is done and the funnel is given about a quarter turn. This engages the pin 17 under the usual lip at the fill-pipe opening 14. A tight seal at the opening of the fill-pipe 15 is obtained by turning the wing-nut 17b to urge the flange 13 and gasket 13a against the lip of the fill-pipe 15. The complete seal thus obtained prevents leakage of fuel from the funnel receptacle member 11, which may rise therein due to the pressure of air and vapors in the fuel tank, until such time as the air and vapors have had time to escape up through the fuel in the funnel, thereby allowing the fuel in the funnel member 13 to flow into the fuel tank. In this manner it is possible to completely fill the fuel tank without spilling the fuel.

Referring to Figures 4 and 5 of the drawings, 20 may be an exteriorly threaded sleeve having a pair of oppositely disposed bayonet pins 21, 21 fixed at one end thereof. At the opposite end of the sleeve 20 there may be secured a funnel member 23, having an opening 23a at the outer end thereof, of sufficient size to receive nozzle of an ordinary fuel dispensing hose. The member 23 may be of more or less flexible vulcanized synthetic rubber to withstand deterioration by the fuel being poured into the fuel tank, and may be vulcanized integral with the sleeve 20, or it may be formed from any other suitable material in any desired shape.

Intermediate the pins 21, 21 and the funnel member 23 there may be an interiorly threaded nut 24 adapted to be turned on the threads of the sleeve 20. A suitable gasket 26 may be provided

for making a tight seal of the funnel on the lip 27 of the fill-pipe 28 of the fuel tank (not shown).

In the practical use of the funnel shown in Figures 4 and 5 the pins 21, 21 are inserted in bayonet slots 30, 30 in the lip 27, 27 of the fill-pipe 28, and given a quarter turn, then the nut 24 is turned in the proper direction to clamp the funnel on the fill-pipe. The gasket 26 prevents leakage of fuel, from the funnel member 23, which may rise therein due to the pressure of air and vapors in the fuel tank.

Figure 6 illustrates the use of a modified form of the invention disclosed in Figures 4 and 5. The elements are essentially the same as before with the exception that the sleeve 20^a is disposed angularly of the outer neck of the fill-pipe 28. This type takes care of the situation where the fill-pipe opening is located in a substantially vertical position, such as in the back panel of an automobile or the vertical wall of an automobile trunk.

Referring to the modification illustrated in Figure 7, a sleeve 31 is provided with bayonet pins 32 at one end as before. The pressure necessary to maintain the required seal against leakage, and to hold the funnel securely in proper position for use, is obtained by insertion of a strong spring 33 between an annular flange 34, integral with the sleeve 31, and a slidable washer 35 having a gasket 36 thereunder. The funnel element 36 may be secured to the sleeve 31 as before and, where vulcanized rubber or synthetic rubber is used, may be provided with one or more layers of reinforcing fabric 37.

The apparatus shown in Figure 7 may be quickly secured in firm upright position by inserting pins 32, 32 in the bayonet slots in the fill-pipe, against the tension of the spring 33, and then turning the sleeve 31 about a quarter revolution. The tension of the spring 33 against the washer 35 will cause a tight seal to be made between the fill-pipe opening and the funnel unit, thereby preventing leakage of fuel at that point. The funnel unit may be just as easily removed by simply turning the pins 32, 32 back until they coincide with the slots 30, 30 in the neck of the fill-pipe.

The funnel members 11, 23, and 36, being of more or less soft, flexible material like rubber or synthetic rubber will not mar a part of an automobile with which they might come in contact and also will flex about a part of an automobile to accommodate the funnel to more or less inaccessible fill-pipe opening.

What is claimed is:

1. A funnel for filling tanks having filling openings with bayonet joint attaching means for the usual tank closing cap, said funnel having bayonet joint means at the outlet thereof for engaging said first named bayonet joint means, a member associated with the outlet of said funnel having a sealing gasket for engaging the edge of said filling opening, a cross-member within the funnel intermediate the ends thereof, means for urging said first named member against said edge of said filling opening, said means comprising a pin extending from said second named bayonet joint means, through an opening in said cross-member, and a nut threaded on the free end of said pin.

2. A funnel for filling tanks having filling openings with bayonet joint attaching means for the usual tank closing cap, said funnel having bayonet joint means at the outlet thereof for engaging said first named bayonet joint means, said second named bayonet joint means comprising a pin having its ends extending through slots in said funnel, a member associated with the outlet of said funnel having a sealing gasket for engaging the edge of said filling opening, a cross-member within the funnel intermediate the ends thereof, means for urging said first named member against said edge of said filling opening, said means comprising a pin extending from said second named bayonet joint means, through an opening in said cross-member, and a nut threaded on the free end of said pin.

3. A funnel for filling tanks having filling openings with bayonet joint attaching means, including a slotted flange about said opening, for the usual bayonet type tank closing cap, said funnel having bayonet joint means at the outlet thereof for engaging through the slots of said flange and under the flange of said first named bayonet joint means, a member on the outlet end of said funnel having a sealing gasket for engaging the top of the flange about said filling opening, said funnel bayonet joint means and said member being relatively movable, and means on said funnel for urging said funnel bayonet joint means and said member together to engage the said member against said top of said filling opening, whereby said funnel may be fitted in sealing connection with the tank at said filling opening regardless of variations in dimensions of the flange about said opening.

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