

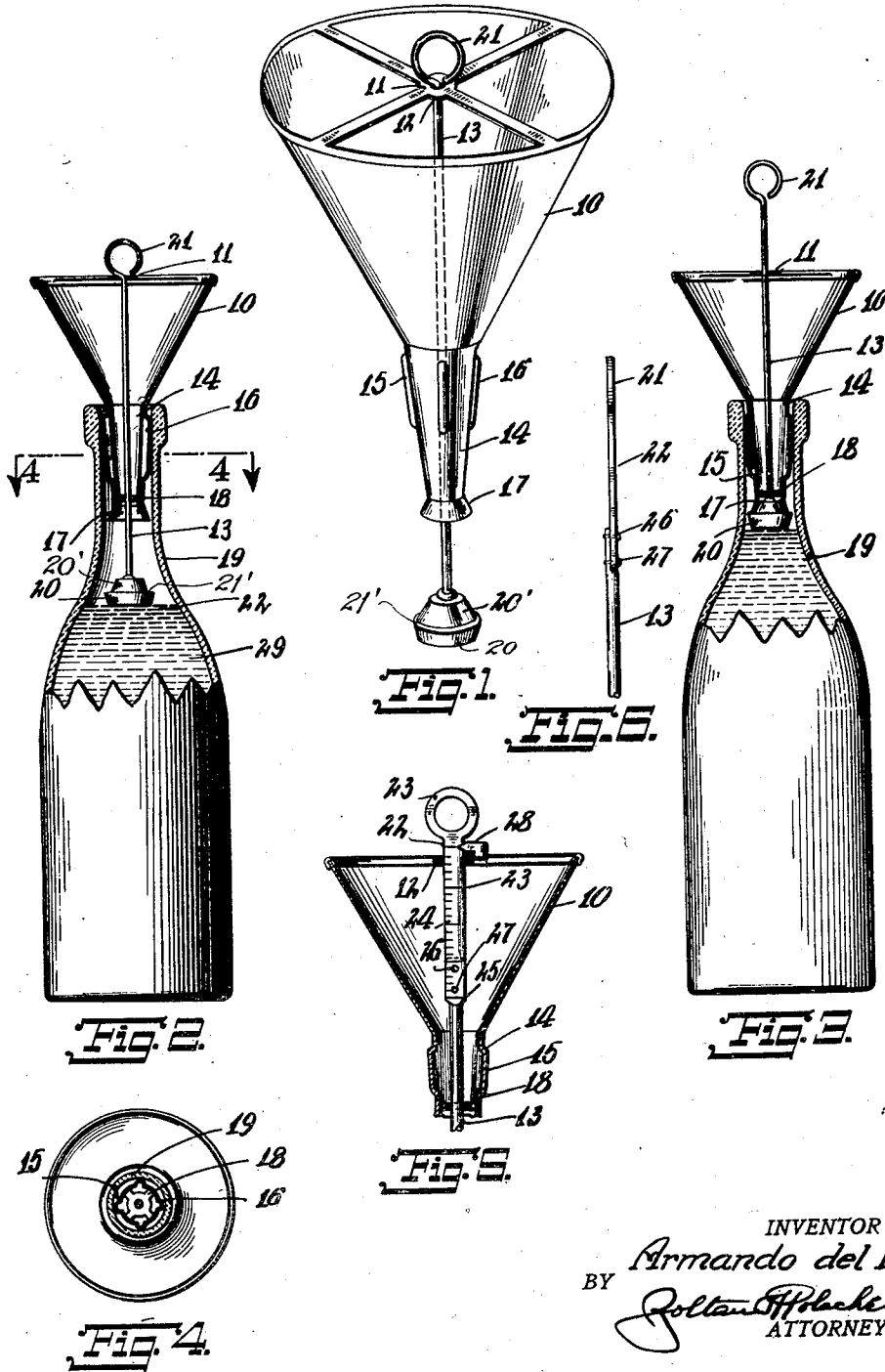
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FUNNEL

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FUNNEL.

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This invention relates to funnels for the filling of bottles and like containers and has for its principal object to provide a device of this character which is adapted to cut off the flow when a liquid has reached the desired height in the said container.

A further object is to give visible indication of the rise of the liquid to a certain point.

This indicating feature is a great advantage when the bottles being filled are of opaque glass, or have labels which obscure the view of the filling process.

The foregoing, together with other objects and advantages will be fully described in the following specification and illustrated in the accompanying drawings, in which:

Fig. 1 is a perspective view of the device in its simplest form.

Fig. 2 is a sectional view of the funnel inserted in the neck of a bottle and with the plunger in its lowest position.

Fig. 3 is a similar view to Figure 2, except that the plunger is shown in its highest position and the valve closed.

Fig. 4 is a section on the line 4—4 of Figure 2.

Fig. 5 is a sectional view of the device in a modified form and showing a calibrated indicator.

Fig. 6 is a side view of the indicator element showing method of attachment to the plunger rod.

Referring to Figure 1, the device comprises a conical receiver 10 having a cross supporting element 11, which element has a central disk plate 12 which is perforated for the passage therethrough of the plunger rod 13. Extending downward from the base of the receiving element is a tapered spout 14 having embossed side portions as shown at 15, 16 etc. At the extremity of the spout 14 is a flanged valve seat 17.

On reference to Figures 3 and 4, a guide member 18 may be seen in position just above the valve seat. This member serves to hold the plunger rod in its central position. The purpose of the embossed sides is illustrated in these views. This purpose being to permit of the escape of air between the neck of the bottle 19 and the spout of the funnel.

Referring now to Figure 2 in particular, the valve head 20 is seen secured to the plunger rod 13. This valve head may be constructed of cork, or other floatable ma-

terial, or may be of hollow form with an internal air space to give it the required displacement. The head 20 is beveled at the top portion 21' to fit within the valve seat when in its raised position and is provided with a horizontal seat 21' which is adapted to engage the edge of the lower extremity of the funnel. A ring 21 is provided at the top of the plunger which acts as a stop member and at the same time affords a means for lifting the device from the bottle when it also serves to draw the valve head securely within the seat thus ensuring against leakage, or dripping of the liquid remaining in the receiving element. When the funnel is removed from a bottle while full of liquid by lifting the same by the ring 21, there is considerable force applied on the head 20 which tends to drive the same in the end of the funnel. This action is restrained by the engagement of the edge of the funnel with the seat 21' which aids in supporting the weight of the funnel and the contents thereof.

When placed within the neck of a bottle, the floatable valve head first hangs suspended, but when the liquid 29 rises to the point of contact therewith as shown in Figure 2 at 22, it rises with the said liquid until it comes to rest within the valve seat 17, thus stopping any further flow through the spout 14, this stage is illustrated in Figure 3 of the drawings. The funnel may now be lifted from the bottle by means of the ring 21 and the process is completed.

The calibrated indicator 22 shown in Figure 5 is constructed as follows. A flat bar 23 is graduated as shown at 24 and is secured to a flattened portion of the plunger rod 13 as shown at 25. In this case rivets are used as shown at 26 and 27, but spot welding, or other method may be employed if desired. A pointer 28 is bent upward from, or secured to a bar of the cross supporting element and acts in conjunction with the calibrated indicator bar.

While I have shown the preferred forms of my invention, I do not wish to be held rigidly to the exact details of construction as shown, but claim the right to such minor modifications as may come within the scope of the appended claims.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent, is as follows:

In a device of the class described, a fun-

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nel comprising a conical receiving element and a discharge spout, a valve seat on the extremity of said discharge spout comprising an outwardly flared portion, upper and 5 lower cross members mounted in said funnel having registering openings therein, said lower cross member being positioned in close proximity to the outwardly flared portion of said discharge spout a rod disposed 10 through said openings and slidably mounted centrally of said funnel, and a buoyant valve member mounted on said rod comprising a conical portion formed to conform with the sides of the outwardly flared portion of valve seat and a horizontal seat portion 15 adapted to engage the lower edge of said discharge spout for supporting the weight of said funnel when the same is lifted by said rod, the conical portion of said valve member being of sufficient length to engage 20 said lower cross member to further prevent inward movement of said valve member.
In testimony whereof I have affixed my signature.

ARMANDO DEL RIO.