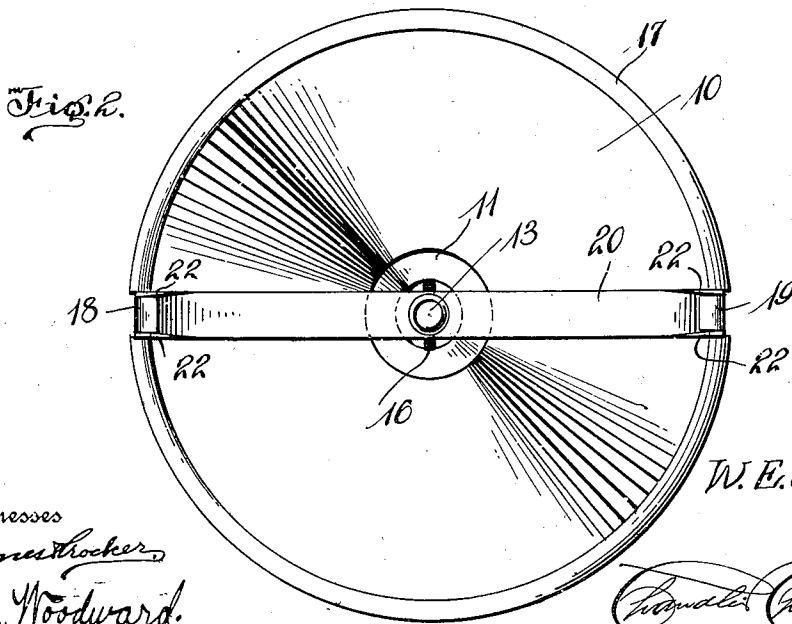
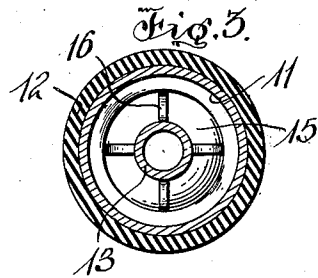
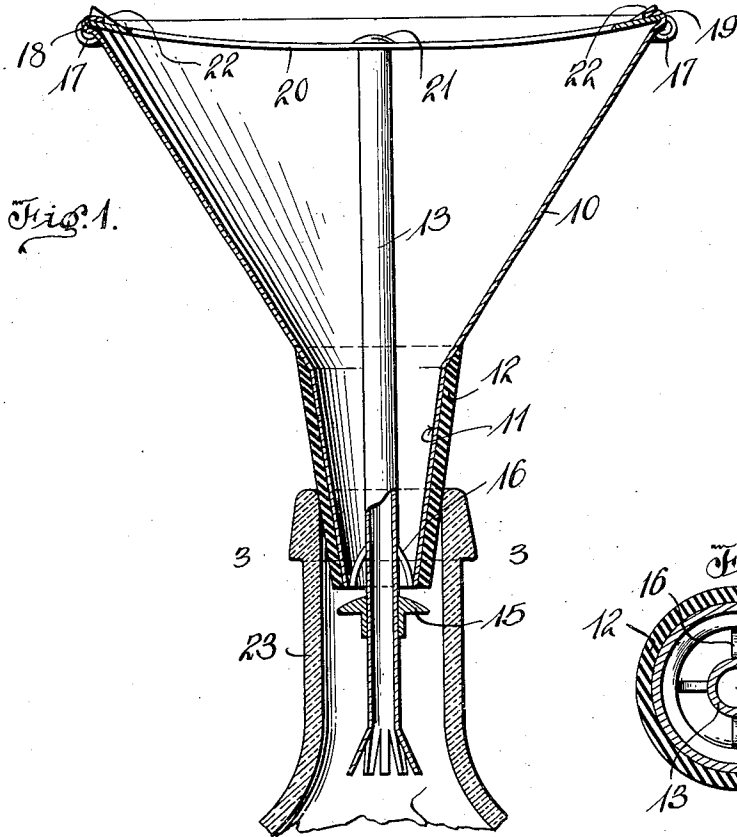


W. E. CRANE.
FUNNEL.

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UNITED STATES PATENT OFFICE.

WILLIAM E. CRANE, OF CORINTH, WEST VIRGINIA.

FUNNEL.

977,372.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, WILLIAM E. CRANE, a citizen of the United States, residing at Corinth, in the county of Preston, State of West Virginia, have invented certain new and useful Improvements in Funnels; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to funnels, and has for its principal object to provide a device of this character wherein the passage of the liquid from the funnel into the bottle is automatically closed when the liquid rises in the bottle to a predetermined point, to prevent the overflow of the liquid from the bottle while being filled.

It is well known that in filling a bottle through a funnel the liquid is liable to overflow, and to prevent this tendency at the same time to hold back the liquid which remains in the funnel, the device herein illustrated has been devised, and in the drawings illustrative of the preferred embodiment of the invention,

Figure 1 is a longitudinal sectional elevation, Fig. 2 is a plan view of the same, Fig. 3 is a transverse section on the line 3—3 of Fig. 1 enlarged.

The improved device comprises a body 10 of the usual converging or funnel shape and with a contracted and tapering discharge portion 11, the tapered discharge portion being preferably surrounded with a packing of rubber or like material 12, to insure the requisite air tight fit in the bottle or other vessel with which the device is employed.

Extending through the body 10 and the discharge portion 11 is a vent tube 13 having the lower end split at several points as shown at 14 and with a valve 15 connected to the tube and spaced above its lower end, as shown. The valve 15 is designed to bear against the lower end of the discharge portion 11, and thus cuts off the flow of the liquid through the funnel when elevated. Connected within the nozzle 11 are a plurality of guide members 16 to insure the seating of the valve. The upper edge of the body 10 is formed with an outwardly curved strengthening lip 17, and secured at its ends to the opposite sides of the receptacle 10 is a resilient strip 20, and the upper end of

the tube 13 is secured in the strip 20 as shown at 21. The strip or plate 20 is longer than the distance across the upper end of the receptacle so that when in its downward position as shown in Fig. 1 it maintains the tube 13 in its depressed position, with the valve 15 open, and when thus arranged the liquid will flow freely through the funnel.

By this arrangement when the funnel is to be used the contracted portion 11 is inserted into the neck of the bottle or other vessel, represented at 23, into which the liquid is to be deposited, the packing 12 forming an air tight coupling between the funnel and the receiving vessel. The liquid is then poured into the funnel and flows through the discharge 11 and over the valve 15, the tube 13 forming a vent for the escape of the air. As soon as the liquid rises to a sufficient extent to close the lower end of the vent the air pressure cannot escape and the liquid stops flowing. The operator then elevates the spring 20 beyond a horizontal position and it will be seen that the spring will then assume an upward arch and serves now to retain the valve in a closed position just as it formerly held the same open. The operator then removes the funnel with the surplus liquid retained therein by the valve. The liquid can then be poured from the funnel or the funnel connected to another bottle or other vessel and the operation repeated. When the funnel is again deposited in the vessel the spring 20 is depressed to open the valve 15 and permit the liquid to flow, as before.

The device is automatic in its action, simple in construction, and effectually prevents all danger of the overflow of the bottle or other vessel during the filling operation. The improved funnel may be constructed of any required size or capacity, and of any suitable material, and may be employed for filling bottles or other vessels with liquids of any character.

What is claimed is:—

1. In a funnel, a valve adapted to close the mouth thereof, a vertical stem secured to the valve, a resilient strip secured at diametrically opposed points to the funnel and of greater length than the straight line joining these points, and means for securing the valve stem to the strip at a point intermediate its length, whereby said valve will be retained in either an open or closed position by the strip.

2. The combination with a funnel, of a vent tube extending therethrough and projecting below the discharge end of the same, a valve carried by said tube and adapted to
5 close the funnel discharge when the tube is elevated, and a spring operating to maintain the tube depressed and the valve in open position, or to hold the tube elevated and the valve closed.
- 10 3. The combination with a funnel, of a vent tube extending therethrough and projecting below the discharge end of the same and split and distended at the lower end, a valve carried by said tube and adapted to
15 close the funnel discharge when the tube is elevated, and a spring operating to maintain the tube depressed and the valve in open

position, or to hold the tube elevated and the valve closed.

4. In a funnel, a body having a discharge 20 nozzle with inwardly directed guide tongues, a resilient strip secured at its ends to the body, a vent tube connected at one end to said strip and extending through said body and nozzle, and a valve carried by said vent 25 tube and seating upon the nozzle when the resilient strip and vent tube are elevated.

In testimony whereof I affix my signature, in presence of two witnesses.

WILLIAM E. CRANE.

Witnesses:

E. C. WYSTAT,
O. E. SQUIRE.