F. JUNEK, JR.

AUTOMATIC FUNNEL.

APPLICATION FILED AUG. 11, 1916.

1,275,565. Patented Aug. 13, 1918.

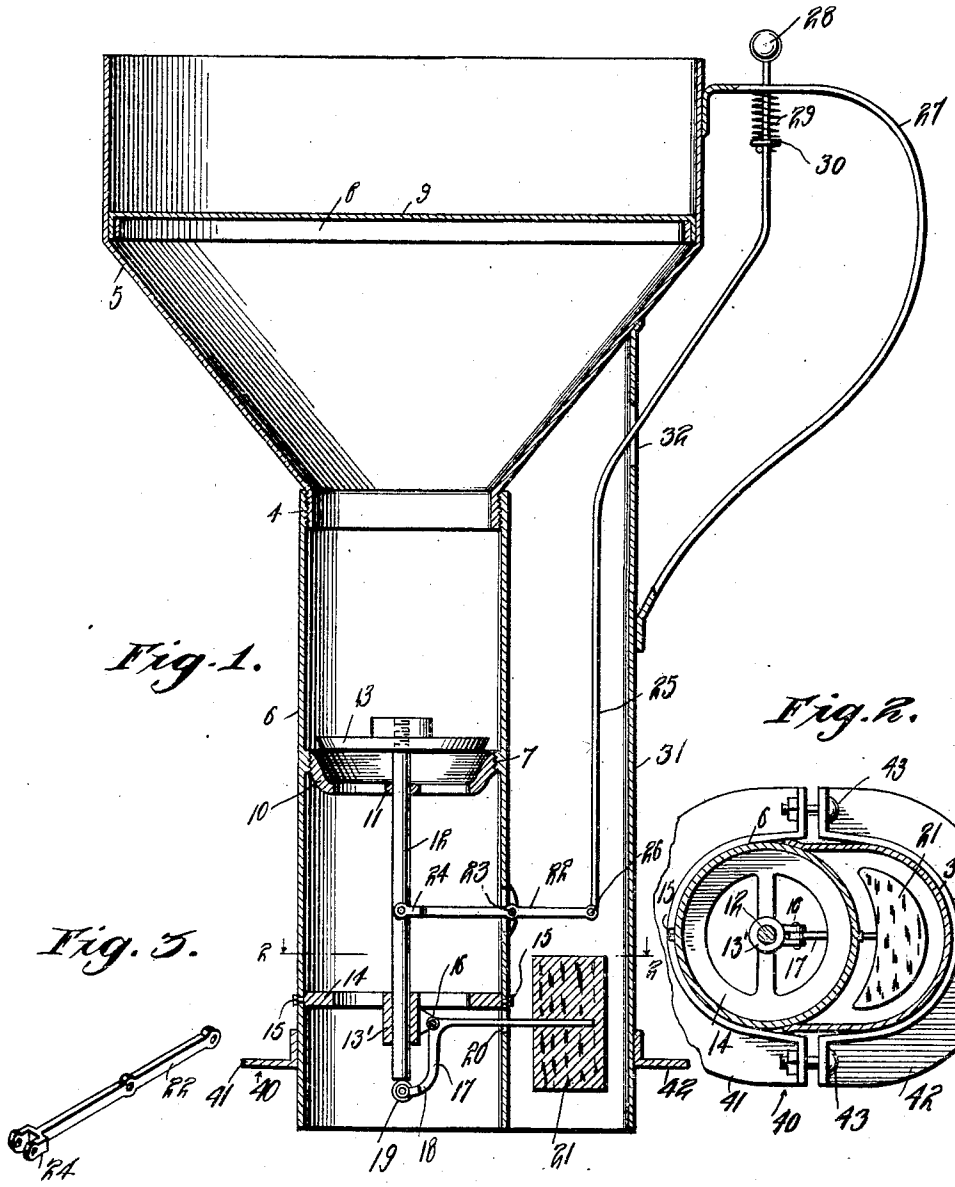


Fig. 1.

Fig. 2.

Fig. 3.

INVENTOR

Frank Junek Jr.

WITNESSES

W. C. Fielding

N. B. Galt

BY Richard B. Owen.

ATTORNEY

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

FRANK JUNEK, JR., OF CABLE, WISCONSIN.

AUTOMATIC FUNNEL.

1,275,565. Specification of Letters Patent. Patented Aug. 13, 1918.

Application filed August 11, 1916. Serial No. 114,446.

To all whom it may concern:

Be it known that I, FRANK JUNEK, Jr., citizen of the United States, residing at Cable, in the county of Bayfield and State of Wisconsin, have invented certain new and useful Improvements in Automatic Funnels, of which the following is a specification.

This invention relates to funnels, and particularly to automatic cut-offs therefor.

The invention has for its primary object to provide a simple and improved mechanism for automatically preventing liquid flowing from the bowl portion of the funnel into the tank or container after the liquid level in the latter has reached a certain height.

A further object of the invention is to provide a funnel of the character described which automatically resets itself after the liquid has been removed therefrom.

A still further and particular object of the invention is to provide a funnel of the type set forth which is of simple and inexpensive construction which is composed of but few readily assembled parts, all so constructed and assembled as to prevent wear, breakage or derangement of the same, which is automatic in operation, and which will prove thoroughly efficient in the attainment of the ends for which it is designed.

With these objects in view, together with others which will appear as the description proceeds, the invention resides in the novel formation, combination and arrangement of parts, all as will be described more fully hereinafter, illustrated in the drawings, and particularly pointed out in the claims.

The invention will be best understood with reference to the accompanying drawings:

Figure 1 is a vertical section view taken through a funnel constructed in accordance with the invention,

Fig. 2 is a transverse sectional view taken on line 2—2 of Fig. 1, and

Fig. 3 is a perspective view of the valve operating lever.

Referring now more particularly to the drawings 4 represents the funnel as an entirety, the same comprising a mouth or bowl portion 5, having a downwardly tapering bottom as shown, to which is threadedly connected the restricted discharge tube or outlet 6. This outlet is preferably of the same diameter throughout its extent and is provided with an annular internally threaded rib 7 at a point intermediate its ends. This rib may be soldered or in any other preferred manner secured to the inner periphery of the discharge tube 6.

A band 8 may be removably arranged within the bowl portion 5 of the funnel to enable a diaphragm of chamois skin or other straining material 9 to be stretched across the interior of the said bowl.

An annular valve seat 10 is threaded upon the rib 7 in the outlet 6, and is provided with relatively short downwardly and inwardly projecting side walls, the latter being connected by a diametrically extending web 11, the latter having a centrally disposed aperture through which a valve stem 12 is adapted to slide. Arranged upon the uppermost extremity of the stem 12 is a valve 13, the latter being adapted to seat upon the seat portion 10 and to snugly fit upon the latter to prevent liquid flowing therethrough.

The stem 12 projects downwardly through the opening in the web 11, and slidably projects through a bearing portion 13′ carried by a ring 14 secured within the discharge outlet adjacent the lower open end thereof. Set screws 15 are threaded through the walls of the tube 6 and engage the ring 14 to maintain the latter in proper position within the said tube.

Pivoted as at 16 to the bearing portion 13′ is a bell crank lever 17, the latter having one of its arms curved outwardly as at 18, and carries at its extremity a roller 19 adapted to pass beneath the lower end of and to support the valve stem 12 in lifted position. The other arm of the lever projects through an elongated slot 20 in the side wall of the tube 6, and has a buoyant member such as a cork or float 21 secured to its free end.

A lever 22 is pivoted as at 23 intermediate its ends to the wall of the outlet 6 and projects at one end within the outlet and is connected with the valve stem 12 intermediate the ends of the latter. The inner extremity of the lever is preferably bifurcated as at 24 to straddle the valve stem and to facilitate pivotally connecting the said end therewith. The opposite end of the lever projects beyond the discharge tube 6, and has a lever operating link 25, secured thereto as at 26. This link projects upwardly from its connection, and extends loosely through a suitable opening formed in a handle or grip member 27 carried by the funnel for manipulating the same. This link has its upper

end provided with a ball or grip member 28, and an expansion spring 29, is interposed between the handle and a collar 30 secured to the link below the said handle. This particular construction enables the lever 22 to be rocked upon its pivot 23 to either seat or unseat the valve 13 by oscillation of the stem 12, and the spring 29 exerts pressure upon the link 25 to normally maintain the valve in lifted or open position.

To protect the lever 22, link 25 and float 21, a housing 31 is arranged over the said elements and is secured to the tube 6 as shown. The housing adjacent its upper end is provided with an elongated slot 32 through which the link 25 extends, and the lower end of the housing is open to permit of liquid freely flowing into the same.

In operation, the funnel is inserted in the intake opening of a tank or other receptacle. The funnel in the present instance is adapted particularly for use in filling gasolene or oil tanks, and the strainer member or diaphragm is stretched across the bowl portion thereof to strain impurities from the liquid. Normally, the tension of the spring 29 is sufficient to raise the valve 13 to open position, and the roller end of the bell crank lever engages beneath the lower extremity of the valve stem 12. The weight of the float 21 is sufficient to force the said roller end of the lever inwardly, and the valve stem 12 is thus maintained in raised position. When the liquid level within the tank attains such height as to flow into the lower open end of the housing 31, the float 21 is forced upwardly, the bell crank rocked upon its pivot 16, and the roller 19 is withdrawn from beneath the valve stem 12. The weight of the liquid passing through the discharge tube at once forces the valve 13 into closed position, whereupon further flow of liquid into the container is prevented. When the valve 13 closes, the link 25 is forced upwardly, and depression of the same with the finger opens the valve to permit of the escape of liquid contained within the funnel. After the funnel has been withdrawn from the tank and the liquid removed therefrom, the tension of the spring 29 forces the valve stem 12 upwardly, and the weight of the float 21 rocks the bell crank so that the arm 18 thereof passes beneath the lower extremity of the valve stem. The funnel thus automatically adjusts itself, and is ready for another operation.

From this description it is apparent that I have provided an extremely simple and yet thoroughly efficient automatically actuating funnel. The various parts may be formed of any suitable materials, and are so assembled and arranged as to preclude the possibility of breakage, wear, or accidental displacement of the same.

A depth regulating flange 40 is adjustably arranged upon the neck portion of the funnel. This flange is formed of a pair of sections 41 and 42, connected by bolts 43 whereby the same may be adjusted upon the funnel neck and securely clamped to the same. This flange limits the downward movement of the funnel in a tank and forms a support for the said funnel.

While the above is a description of the preferred embodiment of the invention, it is obvious that various changes in the minor details of construction and arrangement of parts may be resorted to without departing from the spirit of the invention or exceeding the scope of the claims.

What is claimed is:

1. The combination with a funnel, of a valve in the outlet of said funnel, a stem depending from said valve, a bell crank lever pivoted in said outlet and having one of its arms normally disposed in horizontal position and projecting beyond the said outlet, the extremity of the opposite arm of said lever being bent laterally so as to be parallel with said horizontal arm, a roller on the end of said bent arm adapted to pass beneath and to support the said stem to hold said valve open when the said arm is in horizontal position, and a float on the extremity of the horizontal arm of said bell crank lever, substantially as described.

2. The combination with a funnel, of a valve arranged in the outlet of said funnel, a bearing portion beneath the said valve, a stem connected to said valve and extending through said bearing portion, a bell crank lever pivoted to said bearing portion and having one of its arms disposed horizontally, a roller at the end of the other arm for engagement beneath said stem to hold the valve in open position, the said roller being adapted to move from beneath said stem to allow said valve to seat when said horzontal arm moves upwardly, and a float on said arm, substantially as described.

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

FRANK JUNEK, Jr.

Witnesses:

Edgar M. Drake.

Stewart Ladd.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."