(No Model.)

E. N. GAUDRON.

FUNNEL.

No. 493,993. Patented Mar. 21, 1893.

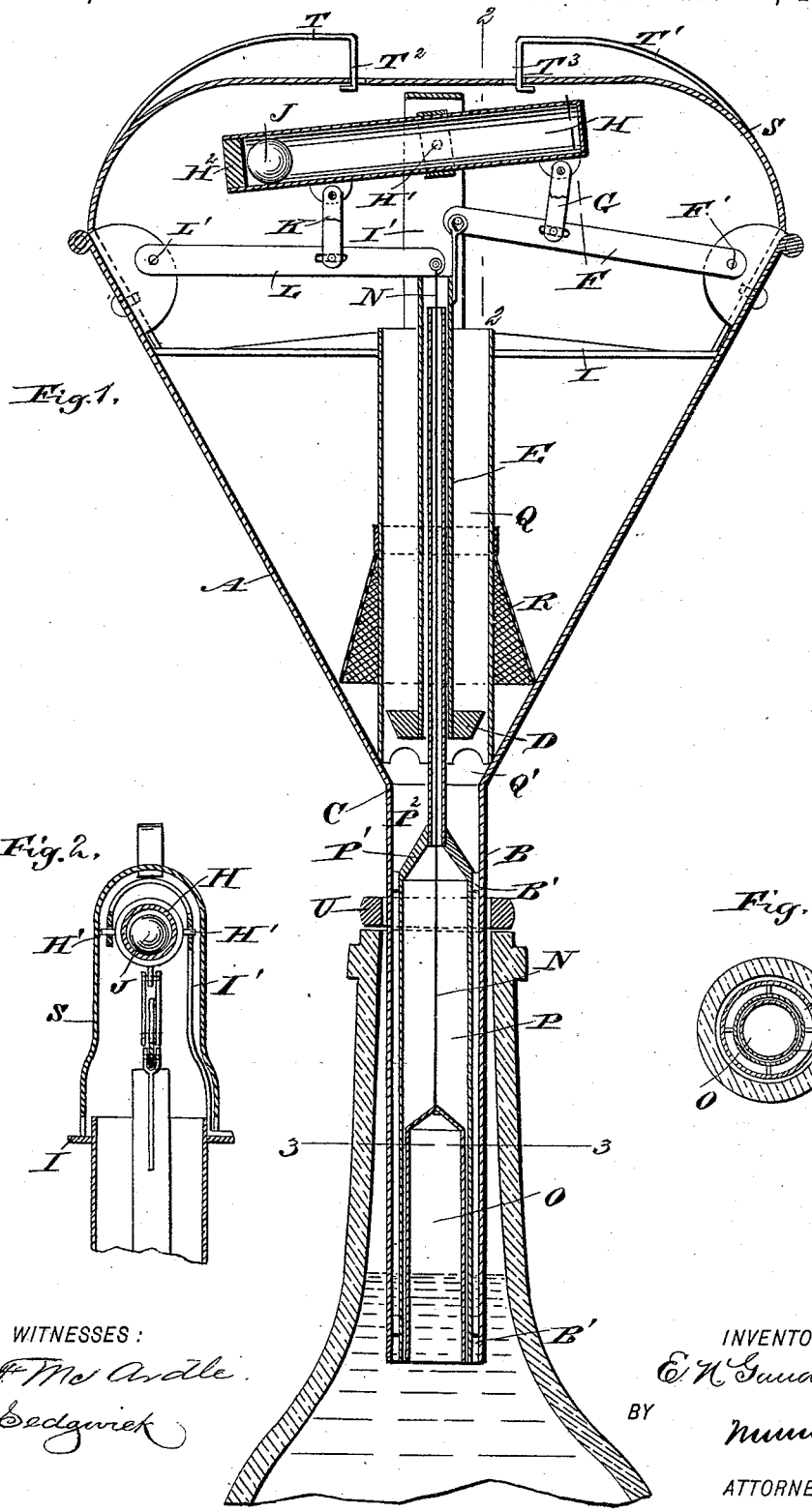

Fig. 1.

Fig. 2.

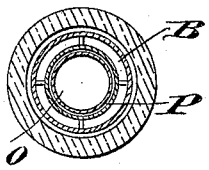

Fig. 3.

WITNESSES:

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EDWARD NAPOLEON GAUDRON, OF PORTLAND, OREGON, ASSIGNOR, BY DIRECT AND MESNE ASSIGNMENTS, TO HIMSELF AND IONS GRAHAM HEWISON, OF SAME PLACE.

FUNNEL.

SPECIFICATION forming part of Letters Patent No. 493,993, dated March 21, 1893.

Application filed April 29, 1892. Serial No. 431,189. (No model.)

To all whom it may concern:

Be it known that I, EDWARD NAPOLEON GAUDRON, of Portland, in the county of Multnomah and State of Oregon, have invented a new and Improved Funnel, of which the following is a full, clear, and exact description.

The object of the invention is to provide a new and improved funnel for conveniently filling liquids into receptacles, and which is arranged to automatically close when the vessel is filled to the proper height, at the same time retaining the liquid remaining in the funnel when the latter is removed from the filled vessel.

The invention consists of certain parts and details and combinations of the same, as will be fully described hereinafter and then pointed out in the claims.

Reference is to be had to the accompanying drawings forming a part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a sectional side elevation of the improvement as applied. Fig. 2 is a transverse section of part of the same on the line 2—2 of Fig. 1; and Fig. 3 is a sectional plan view of part of the improvement on the line 3—3 of Fig. 1.

The improved funnel is provided with the usual inverted cone-shaped body A, from the small end of which extends the nozzle B forming, at the junction with the body A, a valve seat C, on which is adapted to be seated a valve D, for closing the said nozzle B so as to retain any liquid which might be at that time in the body A. The valve D is provided with a hollow valve stem E, which extends upward and is pivotally connected at its upper end with a lever F fulcrumed at F′ on one side of the body A, near the upper end thereof. The lever F is pivotally connected by a link G, with one end of a closed cylinder H, provided at or near its middle with trunnions H′, journaled in the bracket I′ supported on a bridge I, extending in and supported on the body A of the funnel. The end of the cylinder H opposite the link G, is closed by a heavy head H^2, and in the cylinder H is mounted to roll a ball J, resting on the head H^2 when the device is in a normal position, as shown in Fig. 1; that is, when the valve D is off of its seat C. It will be seen that the ball J and the head H^2 overbalance the right-hand end of the cylinder H connected by the link G with the lever F, and by the latter with the stem E of the valve D, so that the latter is held off of its seat until the position of the ball J is reversed, as hereinafter more particularly described.

The left-hand end of the cylinder H is pivotally connected by a link K with a lever L arranged opposite the lever F and also fulcrumed at L′ on one side of the body A. The free end of the lever L is connected by a rod N with a float O open at its lower end and fitted to slide in a tube P attached to the lugs B′ on the inside of the nozzle B. The upper end of the tube P is cone-shaped, as at P′, and from this end extends a pipe P^2 which passes through the hollow valve stem E, and which forms a guide for the float rod N, and at the same time forms an air outlet for the tube P when the float O rises.

In order to prevent the liquid flowing down the body A from coming directly in contact with the valve D, I provide a pipe Q, which is secured to the bridge I and extends downward, having its lower edge scalloped as at Q′, the points of the scallops resting on the lower end of the body A above the seat C.

A cone-shaped strainer or sieve R may be attached to the tube Q, extending from the latter to the inner surface of the body A, as will be readily understood by reference to Fig. 1, so that the liquid, in passing down the body, passes through the said strainer, before it passes through the scallops Q′ and the seat C into the nozzle B.

The working parts in the upper end of the body A are preferably inclosed in a cover S supported on the bridge I, as will be readily understood by reference to Figs. 1 and 2, so that in pouring the liquid into the open end of the body A the liquid cannot pass to the working parts and spoil and clog the same. On the cover S are secured two springs T and T′, provided with downwardly-extending arms T^2 and T^3 respectively passing through the top of the cover S to engage either end of the cylinder H, for the purpose hereinafter more fully explained.

In order to support the funnel on the mouth of the bottle, I provide a flexible ring U en-

gaging the nozzle B and adapted to rest on the upper end of the neck of the bottle, as will be readily understood by reference to Fig. 1. The ring U may be moved up or down on the nozzle so as to regulate the height to which the bottle is to be filled.

The operation is as follows: When the several parts are in the position shown in Fig. 1, the float O is in a lowermost position; that is, reaches to the lower end of the nozzle B. The liquid poured into the body A passes down the same through the strainer R and the scallops Q′ into the nozzle B, and down the space formed between the nozzle and the tube P, to finally discharge into the bottle at the lower end of the said nozzle and tube. When the liquid rises in the bottle and finally immerses the lower end of the nozzle B and the float O, then the latter commences to rise, and by its rod N, causes the lever L to swing upward, so that the link K imparts an upward swinging motion to the left-hand end of the cylinder H, whereby the ball J finally rolls through the cylinder to the right hand end thereof to quickly move this end of the cylinder into a lowermost position, whereby the link G causes a downward swinging of the lever F and the latter a downward motion of the hollow valve stem E and the valve D, until the latter is seated on the seat C and the liquid is shut off from the nozzle B and retained in the funnel body A. As soon as this takes place the operator turns and sees that the bottle is filled to the proper height, and consequently stops pouring the liquid into the body A. The part of the liquid already in the body A remains therein, as the valve D closes the inlet through the nozzle B; the funnel may then be removed from the bottle and placed on a second bottle with the liquid retained in the body A. Now, in order to fill the second bottle the operator presses on the spring T, so that the arm T^2 thereof engages the left-hand end of the cylinder H and swings this end downward to cause the ball J to roll back to its former position on the head H^2. By doing this the cylinder H moves back into the position shown in Fig. 1, whereby the valve D is lifted off its seat C, and the liquid remaining in the body A flows through the open valve seat into the nozzle and through the space between the tube P and the said nozzle into the bottle. At the same time the float O is moved again into its lowermost position, illustrated in Fig. 1. The above described operation is again repeated for filling the second bottle. When it is desired to stop filling the bottle at any determined point, then the operator presses on the spring T′ so that its arm T^3 swings the right hand end of the cylinder H downward, whereby the valve D is closed and further filling of the bottle ceases. The valve D remains in this locked position as the ball J travels to the right-hand end of the cylinder H at the time this end was pressed downward by the operator pressing the spring T′ as described. It will be seen that with this funnel the receptacle is filled to the desired height, at which time the funnel is automatically closed by the valve D controlled from the float O. It will further be seen that the bottle may be filled to any desired height and the liquid shut off from the bottle A, as above described.

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

1. In a funnel, the combination with a valve adapted to close the funnel nozzle, of a pivoted cylinder closed at its ends and containing a ball, the said cylinder being connected at one side of its fulcrum with the said valve, and a float connected with the said cylinder at that side of the fulcrum of the cylinder normally containing the ball, substantially as shown and described.

2. In a funnel, the combination with a funnel body and a nozzle extending therefrom and forming a valve seat at its upper end, of a valve adapted to be seated on the said seat, a cylinder pivoted in the said body and containing a ball, the said cylinder being connected at one side of its fulcrum with the said valve, and a float connected with the said cylinder at the other side of its fulcrum to trip the said cylinder on the rising of the fluid, substantially as shown and described.

3. In a funnel, the combination with a funnel body and a nozzle extending therefrom and forming a valve seat at its upper end, of a valve adapted to be seated on the said seat, a cylinder pivoted in the said body and containing a ball, the said cylinder being connected at one side of its fulcrum with the said valve, and a float connected with the said cylinder at the other side of its fulcrum to trip the said cylinder on the rising of the fluid, and a tube held concentric in the said nozzle and containing the said float, substantially as shown and described.

4. A funnel comprising a funnel body and a nozzle extending therefrom and forming a seat in the same, a valve adapted to be seated on the said seat, a cylinder pivoted in the said body and connected at one end with the stem of the said valve, a float connected with the other end of the said cylinder, and a tube held concentrically in the said nozzle and forming an inlet space in the said nozzle for the incoming liquid, the float being fitted to slide in the said tube, and a pipe extending from the upper end of the said tube to form an outlet for the air compressed in the said tube on the rising of the said float within the tube, substantially as shown and described.

5. A funnel comprising a body and a nozzle extending therefrom and forming a valve seat for the same, a valve adapted to be seated on the said valve seat, and a tube formed with a scalloped end resting on the said body above the valve seat, to protect the said valve from the incoming liquid, substantially as shown and described.

6. A funnel comprising a body and a nozzle

extending therefrom and forming a valve seat for the same, a valve adapted to be seated on the said valve seat, a tube formed with a scalloped end resting on the said body above the valve seat, to protect the said valve from the incoming liquid, and a strainer attached to the said tube and extending to the sides of the said body, substantially as shown and described.

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Witnesses:
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