



# UNITED STATES PATENT OFFICE.

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. 493,994, dated March 21, 1893.

Application filed May 12, 1892. Serial No. 432,737. (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, which is simple and durable in construction, arranged for conveniently filling liquids into receptacles, and constructed to retain the liquid in the funnel after the latter is closed at the time the receptacle is filled to the proper height.

The invention consists of a magnet for finally seating the funnel valve.

The invention also consists of certain parts and details and combinations of the same, as will be 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 vertical section of the same on the line 2—2 in Fig. 1. Fig. 3 is a sectional plan view of the same on the line 3—3 of Fig. 1. Fig. 4 is a plan view of the ring for holding the nozzle in place on the receptacle; and Fig. 5 is a plan view of the bridge plate.

The improved funnel is provided with the usual inverted cone-shaped body A, from the small end of which extends the nozzle B formed, near its lower end and at the inside thereof, with a valve seat C, preferably made by making an annular indentation in the wall of the nozzle B, see Fig. 1. On the seat C is adapted to be seated the flaring or bell-shaped end D' of a float D, fitted to slide in a tube E, supported on lugs B' projecting from the nozzle B, sufficient space being formed between the said tube E and the nozzle B for the downward flow of the liquid to be filled into the bottle. The lower, flaring end D' of the float D forms a valve for closing the lower end of the nozzle B at the time the said float D rises, this rising motion being caused by the action of the rising liquid filled into the bottle, as hereinafter more fully described.

The upper, cone-shaped end E' of the tube E is connected with the nozzle end of an air

pipe E<sup>2</sup> extending upward into the body A, as will be readily seen by reference to Fig. 1, the said pipe E<sup>2</sup> serving to carry off the air in the upper part of the tube E at the time the float rises, thus relieving the same of any compression.

The upper, closed end of the float D is rigidly connected with a stem F extending upward and carrying on its upper end a plate G, above which is arranged a permanent magnet H, fitted to slide within a pipe I and adapted to be raised and lowered by means of a screw H' mounted to turn in a plate J' secured to the bridge J, bolted or otherwise secured at its ends to the body A, near the upper end thereof, as will be readily understood by reference to Figs. 1 and 2. The upper end of the pipe I is soldered or otherwise secured in an opening in the bridge J. The lower end of this pipe is scalloped, as at I<sup>2</sup>, the points of the scallops resting on the body A near the lower small end thereof, so that the liquid passing down the body can flow through the scallops I<sup>2</sup> into the nozzle B. When the float D rises and the plate G moves upward, then the latter is finally attracted by the permanent magnet H and held thereon at the time the flaring end of the valve D' of the float D is seated on the seat C of the nozzle B. The valve D' is thus locked in place by the permanent magnet H.

In order to release the plate G from the permanent magnet H an arm K' is provided, extending between the legs of the permanent magnet and adapted to engage the said plate G for disconnecting the latter from the magnet. The arm K' is attached to the lower end of a rod K, fitted to slide in suitable bearings, of which one is arranged in the pipe I, and the other in the bridge plate J'. On the upper end of the rod K is secured a knob K<sup>2</sup>, on which presses a spring L, coiled on the upper end of the said rod and resting on the bridge plate J', the spring L serving to hold the rod K and its arm K' in an uppermost position, so that the arm K' is slightly above the lower ends of the legs of the permanent magnet H. When the plate G is attracted to and seated on the magnet H and the operator presses on the knob K<sup>2</sup>, then the arm K' engages the plate G and forces the same downward on further pressure on the knob K<sup>2</sup>. The rod K is made

square near its upper end and passes through a like opening  $J^2$  in the bridge plate  $J'$  to prevent the rod  $K$  from turning.

When it is desired to close the said valve  $D'$  on the seat  $C$  at any time, the following device is provided. The under side of the plate  $G$  is adapted to be engaged by a hub formed on top of a disk  $N$  secured on a rod  $N'$  mounted to slide in vertical bearings on the pipe  $I$ . On the upper threaded end of this rod  $N'$  screws a nut  $N^2$  seated on top of bridge plate  $J'$  and formed with an annular groove engaged by a lever  $O$  fulcrumed on the bridge  $J$  and pressed on by a spring  $P$ , to hold the rod  $N'$  and disk  $N$  in a lowermost position, to permit the plate  $G$  to freely rise and fall, as above described. When the operator desires to close the valve  $D'$ , however, by the lever  $O$ , he presses on the free end of the latter, so as to raise the rod  $N'$ , which by its disk  $N$  engages the plate  $G$  and moves the latter, the stem  $F$  and the float  $D$  upward until the valve  $D'$  is seated on the seat  $C$ .

In order to hold the funnel on the bottle, the nozzle  $B$  is engaged by a flexible ring  $Q$ , preferably split as at  $Q'$ , and formed at its inner edge with notches  $Q^2$ , so as to permit the air to escape from the bottle at the time the latter is being filled.

A strainer  $R$  may be attached to the pipe  $I$  to strain the liquid passing down the body  $A$  of the funnel. The strainer is preferably cone-shaped and rests with its base end on the inner surface of the body  $A$ .

The operation is as follows:—When the several parts are in the position shown in Fig. 1, the liquid poured into the body  $A$  passes down the same through the scallops  $I^2$  into the nozzle  $B$ , and through the space formed between the nozzle and the tube  $E$ , and through the open valve seat  $C$  into the bottle or other receptacle to be filled. When the liquid rises in the bottle to the position shown in Fig. 1, or slightly above the same, then the float  $D$  is caused to slide upward by the action of the rising liquid, so that the plate  $G$  is moved into the field of the permanent magnet  $H$ , and is suddenly attracted by the latter, so that finally the valve end  $D'$  of the float is firmly seated on the seat  $C$ , thus closing the lower end of the nozzle  $B$ . A further inflow of the liquid into the receptacle is thus prevented and as the valve  $D'$  is locked in position by the permanent magnet, the liquid remains in the nozzle  $B$ , and body  $A$ . The funnel can then be taken from the filled bottle to a second bottle to be filled, the liquid remaining in the nozzle and body as the valve  $D'$  closes the lower end of the nozzle. The nozzle  $B$  having been inserted in the neck of the second bottle, the operator presses the knob  $K^2$ , so as to disengage the plate  $G$  from the permanent magnet  $H$ , as above described, whereby the valve  $D'$  of the float is unseated from the seat  $C$  and the liquid retained in the nozzle  $B$  and body  $A$  can flow into the second bottle. When it is desired to stop filling a bottle at any de-

sired point before the bottle is completely filled, as before described, then the operator presses on the free end of the lever  $O$ , so as to raise the rod  $N'$  and its disk  $N$ , which latter then moves in contact with the plate  $G$  and raises the same to finally seat the valve  $D$  on the seat  $C$ . It is understood that the disk  $N$  raises the plate  $G$  sufficiently to move the latter into the field of the magnet, which latter then suddenly seats the valve  $D'$  on the seat  $C$ . The magnet  $H$  is held vertically adjustable by screw  $H'$  so as to bring its lower end into the proper position relative to the plate  $G$ , according to the attractive power of the said magnet.

It is understood that while I have shown and described a permanent magnet, it is obvious that in many cases an electro magnet may be successfully employed.

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

1. A funnel, comprising a body, a nozzle, a tube held concentric in the said nozzle and forming with the latter an annular space for the liquid to pass through, and a float valve contained in the said tube and adapted to automatically close the lower end of the said nozzle, substantially as shown and described.

2. A funnel provided with a float forming, at its lower end, a valve for closing the nozzle of the funnel, and a permanent magnet for finally seating the valve of the float on its seat on the nozzle, substantially as shown and described.

3. A funnel provided with a float forming, at its lower end, a valve for closing the nozzle of the funnel, and a permanent magnet for finally seating the valve of the float on its seat on the nozzle, and a releasing device for unseating the said valve, substantially as shown and described.

4. In a funnel, the combination with a funnel body, and a nozzle extending therefrom, the lower end of the nozzle being formed with a valve seat, of a float closed at its upper end and formed at its lower end with a valve adapted to be seated on the said valve seat, a tube arranged concentrically within the said funnel and in which slides the said float, a valve stem connected with the said float and extending through the said tube, the upper end of the said valve stem carrying a plate, and a permanent magnet adapted to attract the said plate, substantially as shown and described.

5. In a funnel, the combination with a funnel body, and a nozzle extending therefrom, the lower end of the nozzle being formed with a valve seat, of a float closed at its upper end and formed at its lower end with a valve adapted to be seated on the said valve seat, a tube arranged concentrically within the said funnel and in which slides the said float, a valve stem connected with the said float and extending through the said tube, the upper end of the said valve stem carrying a plate,

a lever and a rod connected with the said lever and provided with a disk adapted to engage the said plate, for raising the latter, substantially as shown and described.

5 6. In a funnel, the combination with a funnel body, and a nozzle extending therefrom, the lower end of the nozzle being formed with a valve seat, of a float closed at its upper end and formed at its lower end with a valve  
10 adapted to be seated on the said valve seat, a tube arranged concentrically within the said funnel and in which slides the said float, a valve stem connected with the said float and extending through the said tube, the upper  
15 end of the said valve stem carrying a plate a permanent magnet adapted to attract the said plate, and a releasing device, substantially as described, for disconnecting the said plate from the said permanent magnet to unseat the  
20 valve of the float, substantially as shown and described.

7. A funnel provided with a flexible split ring adapted to engage the nozzle of the fun-

nel and formed at its inner edge with notches forming air escapes, substantially as shown 25 and described.

8. In a funnel, the combination with a funnel body, and a nozzle extending therefrom, the lower end of the nozzle being formed with a valve seat, of a float closed at its upper end 30 and formed at its lower end with a valve adapted to be seated on the said valve seat, a tube arranged concentrically within the said funnel and in which slides the said float, a valve stem connected with the said float and 35 extending through the said tube, the upper end of the said valve stem carrying a plate a permanent magnet adapted to attract the said plate, and means, substantially as described, for adjusting the said magnet relative to the 40 said plate, as set forth.

EDWARD NAPOLEON GAUDRON.

Witnesses:

FREDERICK R. STRONG,  
LIZZIE GROUNDS.