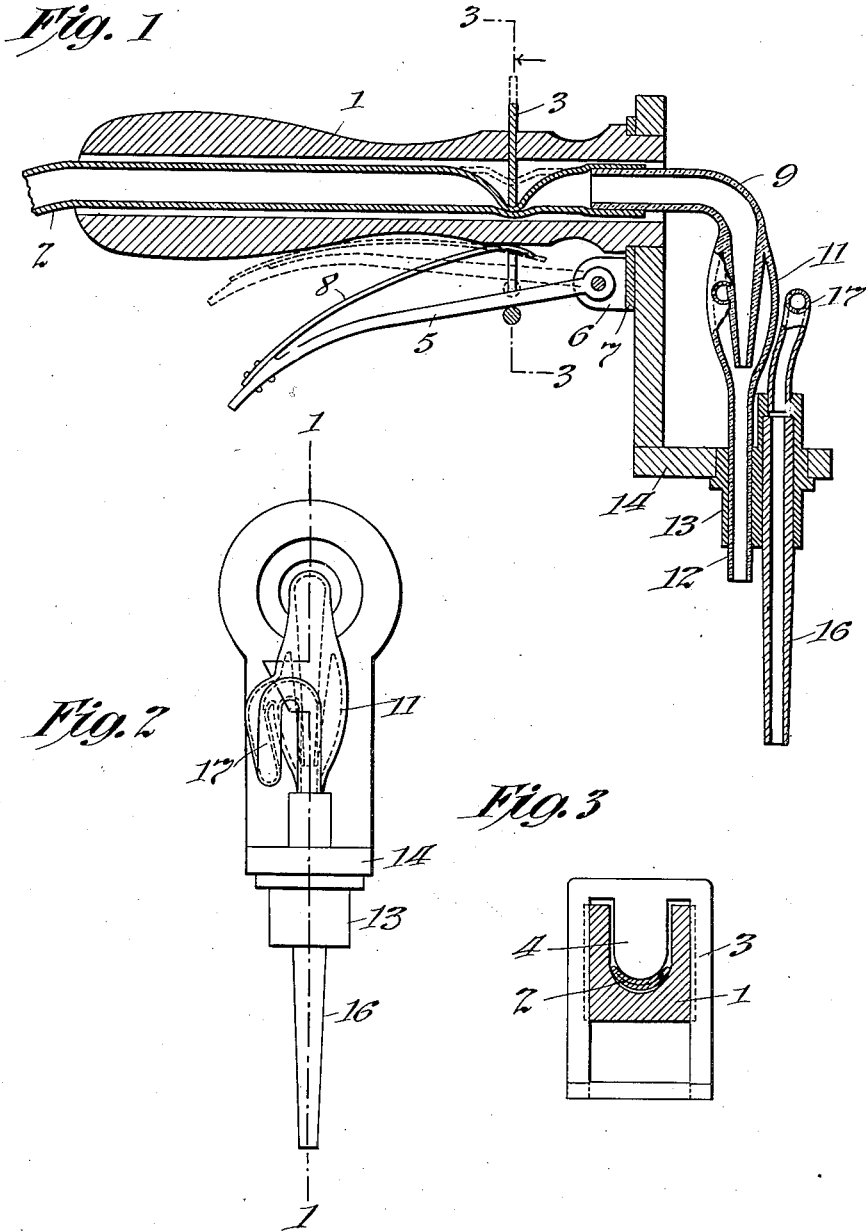


T. A. EDISON.
 FILLING APPARATUS FOR STORAGE BATTERY JARS, &c.
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898,633.

Patented Sept. 15, 1908.



Witnesses:
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UNITED STATES PATENT OFFICE.

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FILLING APPARATUS FOR STORAGE-BATTERY JARS, &c.

No. 898,633.

Specification of Letters Patent.

Patented Sept. 15, 1908.

Application filed December 10, 1903. Serial No. 184,691.

To all whom it may concern:

Be it known that I, THOMAS ALVA EDISON, of Llewellyn Park, Orange, in the county of Essex and State of New Jersey, have invented certain Improvements in Filling Apparatus for Storage-Battery Jars, &c., of which the following is a description.

My invention relates to an improved apparatus which has been especially designed for filling storage battery jars or cans with water from time to time as they become depleted, due to evaporation or decomposition from gassing; but the device can be effectively used in connection with other liquids than water, and for filling other receptacles than storage battery jars.

Heretofore, devices for the purpose have consisted generally of funnels provided with floats for giving a visual indication when the proper level is reached, but such devices have been practically objectionable in a number of respects. In the first place, the liquid flows very slowly since the pressure is extremely slight, and this objection is increased when the indicating devices are arranged within and partially obstruct the exit pipe or tube from the funnel. Furthermore, the use of a float indicator is unreliable and uncertain, while the index used is necessarily small and its movements are likely to be unobserved. Finally, the prior devices are more or less bulky, and hence can not be conveniently used for filling storage battery jars when the latter are in position in the bodies of automobiles.

The object of my present invention is to provide an apparatus for the purpose which shall be very simple and compact, by means of which the liquid may be introduced very rapidly, and wherein a very certain accurate notification will be given when the liquid has reached the desired level in the receptacle.

In order that the invention may be better understood, attention is directed to the accompanying drawings forming a part of this specification and in which,

Figure 1 is a vertical section on line 1—1 of Fig. 2 of a filling apparatus embodying my invention; Fig. 2 is a front elevation of the same; Fig. 3 is a section on line 3—3 of Fig. 1.

In all of the above views corresponding parts are represented by the same numerals of reference.

The handle 1 is made of wood or rubber and is hollow and contains the supply tube 2

leading from a suitable tank in which the liquid is contained. When the valve arrangement is such that the supply of liquid is controlled by compressing and releasing the tube 2, the latter should be made of rubber, but when a separate valve is employed, a metal pipe may be used. In order to compress the rubber tube 2 to control the flow of liquid therethrough, I make use of a yoke 3 arranged to slide in ways cut in the side of the handle shown, and provided with a central tongue 4 which projects through the handle and engages the tube as shown.

Bearing on the underside of the yoke 3 is a lever 5 pivoted between ears 6 on a plate 7 (Fig. 1) and normally pressed downwards by a spring 8 as shown. By elevating the lever 8 as indicated in dotted lines, Fig. 1; it will be obvious that the rubber tube will be uncompressed so as to permit a flow of liquid through the same. Communicating with the tube 2 and leading out from the handle 1 is a pipe 9 made preferably of glass whose intermediate portion is formed into a simple and well known form of injector as shown, comprising a suction chamber 11. This chamber has a contracted outlet in the form of an extension 12 which passes through a plug 13 carried by a bracket 14 secured to the handle 1 as shown. The plug 13 fits in an opening in the receptacle and is formed with a channel in its side to permit of the escape of air from the receptacle as will be understood. Extending through the plug 13 is a suction pipe 16, the upper end of which connects with the suction chamber 11. This suction pipe 16 is preferably formed with a goose-neck 17 so as to offer a better indication of the passage of air bubbles through it when in use. When the plug 13 is inserted in position in the opening in the receptacle to which the liquid is to be introduced, the lower end of the suction tube 16 represents the level to which the liquid is to be supplied.

The operation of the device will be as follows:—The plug 13 is inserted in the receptacle, and the lever 8 is elevated so as to permit the liquid to flow through the tube 2 into the discharge pipe 9 and thence through the suction chamber 11 and finally through the exit pipe 12 thereof into the receptacle. This action creates an exhaust or partial vacuum in the suction chamber 11, and air will be drawn up through the suction pipe 16 as will be understood. The introduction of liquid in this

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way may be made very rapid, much more so in fact than can be secured by means of a funnel since any desired head or pressure can be secured. As soon as the level of the liquid in the receptacle reaches the lower end of the suction pipe 16, the suction therein will cause liquid to flow upwardly through the suction pipe into the suction chamber 11. Before a steady stream of liquid commences to flow upward through the suction pipe air bubbles will pass up through the same, and the presence of these air bubbles passing upwardly through the suction pipe offers a convenient and certain notification of the reaching of the right level of the liquid in the receptacle. It will of course be understood that the device may be modified in many respects without departing from the essential spirit of my invention which consists in so organizing the parts that the flow of liquid into the receptacle to be filled creates a suction and causes air bubbles or liquid to be drawn upwardly from the surface of the liquid in the receptacles when the level thereof reaches the desired point.

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

1. In a filling apparatus, a supply pipe having a suction chamber with a contracted outlet, a suction pipe of transparent material leading into said chamber, the lower portion of said suction pipe being arranged substantially parallel to said supply pipe, substantially as set forth.

2. In a filling apparatus, a supply pipe having a suction chamber with a contracted

outlet, a suction pipe leading into said chamber, said suction pipe comprising a gooseneck of transparent material and a lower portion arranged substantially parallel to said supply pipe, substantially as set forth.

3. In a filling apparatus, a supply pipe having a suction chamber with a contracted outlet, a suction pipe of transparent material leading into said chamber, and a plug, the lower portion of said suction pipe and of said supply pipe passing through said plug, in substantial parallelism to each other, substantially as set forth.

4. In a filling apparatus, a supply pipe having a suction chamber with a contracted outlet, a suction pipe of transparent material leading into said chamber, the lower portion of said suction pipe being arranged substantially parallel to said supply pipe, and a flexible supply tube connected to the inlet end of said supply pipe, substantially as set forth.

5. In a filling apparatus, a supply pipe having a suction chamber with a contracted outlet, a suction pipe of transparent material leading into said chamber, the lower portion of said suction pipe being arranged substantially parallel to said supply pipe, a flexible supply tube connected to the inlet end of said supply pipe, and means for controlling the flow of liquid through said supply pipe, substantially as set forth.

This specification signed and witnessed this 8th day of Decr. 1903.

THOMAS A. EDISON.

Witnesses:

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