P. G. MacGREGOR.

VALVE CONSTRUCTION.

APPLICATION FILED APR. 15, 1919.

1,326,358. Patented Dec. 30, 1919.

Fig. 1.

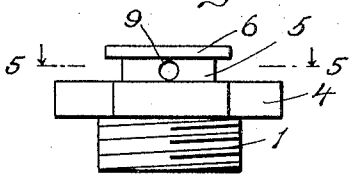


Fig. 2.

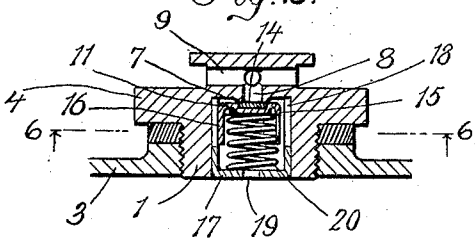


Fig. 3.

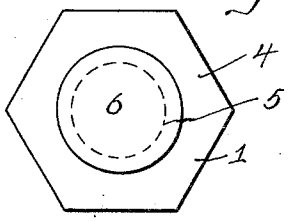


Fig. 4.

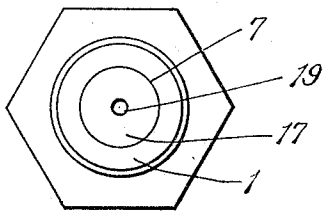


Fig. 5.

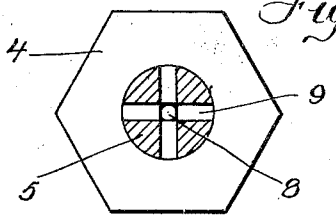


Fig. 6.

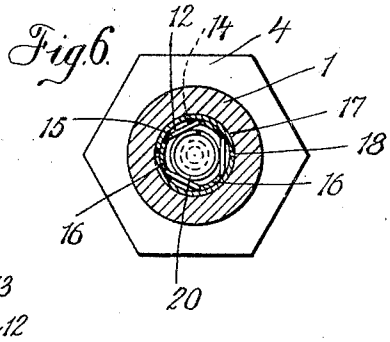


Fig. 7.

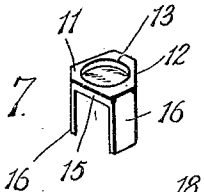
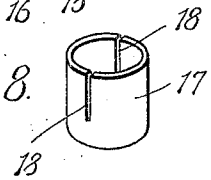


Fig. 8.



Inventor

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By his Attorney

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UNITED STATES PATENT OFFICE.

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VALVE CONSTRUCTION.

1,326,358. Specification of Letters Patent. **Patented Dec. 30, 1919.**

Application filed April 15, 1919. Serial No. 290,260.

To all whom it may concern:

Be it known that PETER G. MacGREGOR, a citizen of the United States, and resident of the city, county, and State of New York, has invented certain new and useful Improvements in Valve Construction, of which the following is a specification.

This invention relates to an air inlet valve adapted more particularly to be applied to receptacles from which a liquid is to be discharged to permit of intake of air as the liquid is withdrawn while preventing escape of the liquid therethrough.

Valves of this type are preferably located, for convenience in construction, in the cap or plug which closes the filling opening of the receptacle and in the present instance the valve is shown embodied in such a cap and may, therefore, be termed a filler cap valve, these caps being generally known as filler caps.

The invention has for an object to provide an efficient valve of this type characterized by extreme simplicity of construction and a minimum liability to get out of working order.

For further comprehension of the invention and of the objects and advantages thereof, reference will be had to the following description and accompanying drawings and to the appended claims in which the various novel features of the invention are more particularly set forth.

In the drawings, like parts in the several views have been given the same reference numeral.

Figure 1 of the drawings is a side view of a filler cap having the invention embodied therein.

Fig. 2 is an axial sectional view thereof, showing the cap in position in a liquid container, a fragmentary portion of the container only being shown.

Fig. 3 is an outside or top plan view of the cap.

Fig. 4 is an inside or bottom plan view of the cap.

Fig. 5 is a sectional top plan view on the line 5—5 of Fig. 1.

Fig. 6 is a sectional bottom plan view on the line 6—6 of Fig. 2.

Fig. 7 is a perspective detail view of a valve member.

Fig. 8 is a perspective detail view of another valve member or cup closing the lower end of the valve chamber.

In the drawings the body portion of a filler cap is shown at 1 and is exteriorly threaded at its lower end to screw into a suitable aperture in a receptacle, a portion of which is shown at 3 in Fig. 2.

The cap is here shown as having a flanged head 4, which may be of hexagonal or other suitable shape to receive a wrench or spanner. From one side of this head 4 a central boss 5 projects, which may be formed with a circumferential flange 6 at its upper end.

The filler cap 1 is provided with a cylindrical recess 7 (Fig. 2) which provides a valve chamber. From this recess a central passage 8 leads upwardly into the boss 5 and communicates with one or more radial openings 9 (Figs. 2 and 5). Surrounding the lower end of the passage 8 is an annular lip or projection which forms a valve seat in the valve chamber 7.

The valve member as here shown (Fig. 7) comprises a metal stamping formed with an end portion 11 flattened at its sides, as at 12, and preferably provided with a recess 13 to receive a disk 14, of leather or any suitable material, to form a valve facing, which may be cemented or otherwise secured in place. A short flange 15 projects downwardly from the periphery of the end portion 11 between a series of evenly spaced prongs 16 which extend downwardly beyond the flange 15, as shown, these prongs being preferably curved in cross section, as shown in Fig. 6.

The diameter of the valve member 11 is slightly less than the inside diameter of a metal stamping formed into a cup 17 (Fig. 8), which is inserted, open end foremost, in the valve chamber 7 (Fig. 2) in the filler cap 1, and incloses loosely the prongs 16 of the valve member 11. The flattened portions 12 of the edge of the valve member 11 provide spaces for the free passage of air between the valve member and the wall of the chamber 7.

This cup 17 is held in the valve chamber 7 by frictional engagement with the cylindrical wall of the latter, and the wall of the cup is preferably slotted, as at 18, (Fig. 8) for a distance downwardly from its open

end to facilitate insertion of the cup in the recess, the slots permitting the side walls of the cup to yield slightly and insure a tight fit.

The bottom of the cup 17 forms in effect one wall closing the lower end of the valve chamber 7 and is preferably substantially flush with the lower end of the filler cup 1 when in position, the relative diameter of the valve chamber and the cup being arranged to require the application of some degree of force to insert the cup in position while permitting it to be removed to give access to the valve parts.

The bottom of the cup 17 is centrally perforated, as at 19, to provide an air passage. The bottom also serves as an abutment for a coiled spring 20, which is positioned between the prongs 16 and against the inside of the end portion 11 of the valve member and serves to yieldingly hold the valve member in position (Fig. 2). The upper end of this spring may be localized by the flanges 15 while the prongs 16 act as guides and insure the proper seating and free operation of the valve member.

The operation of the device will be readily understood from the above description, it being obvious that the spring 20 will yield to allow air to enter the receptacle, through the passages 9, 8 and 19, but will hold the valve member 11 on its seat to prevent escape of liquid or air in the opposite direction. The flange 6 of the filler cap 1 protects the outer ends of the air openings 9 from accidental clogging or blocking.

It will be apparent that I have provided a valve, suitable for embodiment in a filler cap, which is efficient in operating, of extremely simple arrangement and of a construction which is not liable to get out of order.

What I claim is:—

1. A valve of the type described comprising a casing having a recess and an aperture extending through the wall of the casing to said recess, a valve in the said recess closing the said aperture, a spring pressing said valve upon its seat, and a cup shaped abutment member for said spring inserted open end foremost in said recess and held in position by frictional engagement with the walls of said recess.

2. A valve of the type described comprising a casing having a recess and an aperture extending through the wall of the casing to said recess, a valve in the said recess closing the said aperture, a spring pressing said valve upon its seat, and a cup shaped abutment member for said spring inserted open end foremost in said recess and held in position by frictional engagement with the walls of said recess, the cylindrical wall of said member being longitudinally split, for the purpose set forth.

3. A valve of the type described comprising a casing having a recess and an aperture extending through the wall of the casing to the said recess, a valve in the said recess closing the said aperture, a spring pressing said valve upon its seat, a cup shaped abutment member for said spring inserted open end foremost in said recess, and an extension on said valve whereby it is guided by engagement with the wall of said cup shaped member.

4. In a valve, a cylindrical valve chamber, a valve within said chamber, said valve having its periphery flattened in portions to provide a passage for the fluid, and means whereby said valve is guided by engagement with the wall of the valve chamber.

5. In a valve, a cylindrical valve chamber, a valve within said chamber, said valve having its periphery flattened in portions to provide a passage for the fluid, and means whereby said valve is guided by engagement with the wall of the valve chamber, said means comprising a series of prongs formed on the edge of the valve and adapted to slidably engage the wall of the valve chamber.

6. In a valve, a cylindrical valve chamber, a valve within said chamber, said valve having its periphery flattened at portions, a perforated cup inserted open end foremost in the said chamber and closing one end thereof, a spring inclosed by said cup pressing the valve upon its seat, and prongs extending from the said valve and slidably engaging the wall of the cup to guide said valve.

7. In a valve, a cylindrical valve chamber, a valve within said chamber, said valve having its periphery flattened at portions, a perforated cup inserted open end foremost in the said chamber and closing one end thereof, a spring inclosed by said cup pressing the valve upon its seat, and prongs extending from the said valve and slidably engaging the wall of the cup to guide said valve, said cup being held in the said chamber by frictional engagement with the wall thereof.

Signed at the city, county and State of New York, this 11th day of April, 1919.

PETER G. MacGREGOR.