R. M. TAYLOR & A. G. BROE.

VALVE PLUG FOR VOLATILE CONTAINERS.

APPLICATION FILED JULY 16, 1913.

1,139,463. Patented May 11, 1915.

Fig. 1.

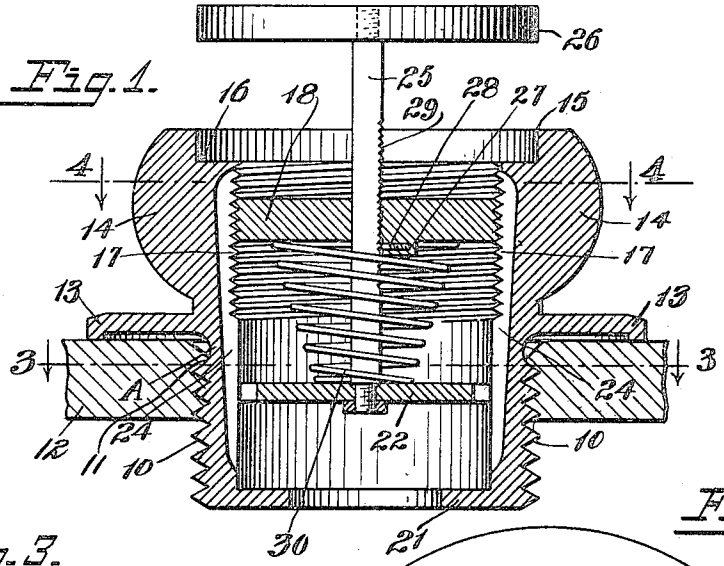


Fig. 4.

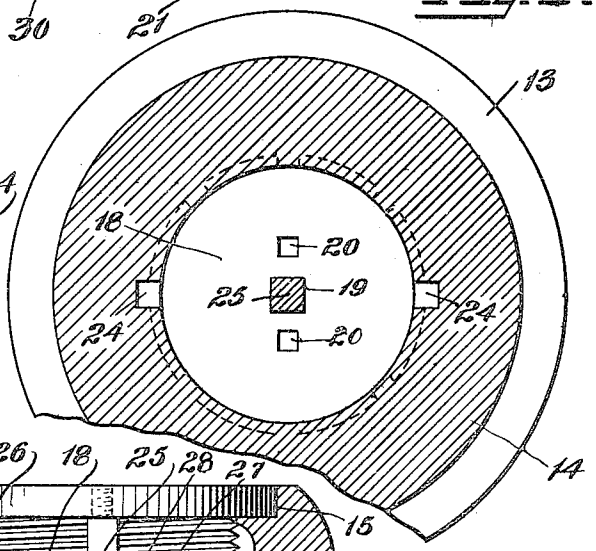


Fig. 3.

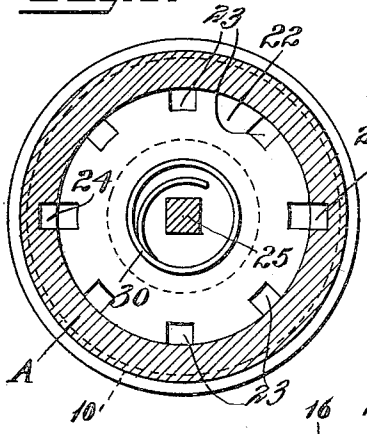
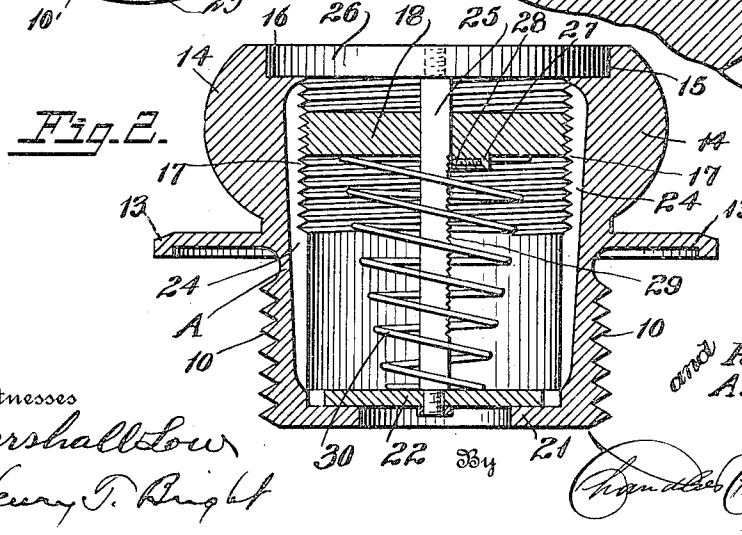


Fig. 2.



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UNITED STATES PATENT OFFICE.

ROY M. TAYLOR AND ANDREW G. BROE, OF VANCOUVER, BRITISH COLUMBIA, CANADA.

VALVE-PLUG FOR VOLATILE-CONTAINERS.

1,139,463. Specification of Letters Patent. Patented May 11, 1915.

Application filed July 16, 1913. Serial No. 779,286.

To all whom it may concern:

Be it known that we, ROY M. TAYLOR and ANDREW G. BROE, subjects of the King of England, residing at Vancouver, in the Province of British Columbia, Dominion of Canada, have invented certain new and useful Improvements in Valve-Plugs for Volatile-Containers; and we do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to valve plugs for volatile containers.

The object of the invention resides in the provision of a valve plug for volatile containers which embodies an improved construction whereby the gas within the container is allowed to escape and simultaneously ignited when the pressure of the gas within the container rises above a predetermined point.

A further object of the invention resides in the provision of a valve plug for volatile containers which will not only open and ignite the gas when the pressure of the latter rises above a predetermined point but will also automatically close and prevent further escape of gas as soon as the pressure of the latter within the container is sufficiently reduced.

A still further object of the invention resides in the provision of a valve plug of the character named which can be adjusted so as to operate under different pressures to permit the escape and ignition of gas.

With the above and other objects in view the invention consists in the details of constructon and in the arrangement and combination of parts to be hereinafter more fully described and particularly pointed out in the appended claim.

In describing the invention in detail reference will be had to the accompanying drawings wherein like characters of reference denote corresponding parts in the several views, and in which—

Figure 1 is a vertical section of the improved valve plug and showing the parts in the position they would occupy when the pressure of the gas within the container is in excess of that at which the plug is set to operate; Fig. 2, a view similar to Fig. 1 showing the position of the parts when the pressure of the gas within the container is below that at which the valve is set to operate. Fig. 3, a section on the line 3—3 of Fig. 1, and Fig. 4, a section on the line 4—4 of Fig. 1.

Referring to the drawings the improved plug is shown as comprising a tubular body A having its lower end threaded exteriorly at 10 for engagement in the threaded opening 11 of a volatile container 12. The body A is provided intermediate its ends with a circumscribing flange 13 which is adapted to bear against the top of the container 12 when the plug is applied. The outer or upper end of the body A is enlarged as at 14 and the outer or upper end of the bore of said body is enlarged as at 15 to form a seat 16. The bore of the body A is threaded as at 17 and engaged with these threads is a disk 18 having a central opening 19 and also openings 20 disposed on opposite sides of the opening 19 and adapted to receive a key for the purpose of rotating the disk 18 to adjust the latter in the bore of the body A as will be obvious. The inner end of the body A is provided with an inwardly directed flange 21 upon which is adapted to seat a disk 22 slidable in the bore of the body A the periphery of the disk 22 is notched as at 23 so as to permit free escape of the gas from the container when said disk is raised from the flange 21. The wall of the bore of the body A is provided with a plurality of longitudinal grooves 24 the outer ends of which terminate at the seat 16 and their inner ends a slight distance from the flange 21. The distance between the inner ends of the grooves 24 and the flange 21 is such that when the disk 22 is seated upon the flange 21 the outer side of said disk will be disposed inwardly of the inner ends of said grooves. Suitably connected to the disk 22 is a stem 25 which is slidably engaged through the opening 19 and carried on the outer end of said stem is a disk 26 adapted to engage upon the seat 16 when the parts of the plug are in closed position. Depending from the disk 18 is a lug 27 which carries a flint member 28 the point of which engages a roughened surface 29 formed on the stem 25. Interposed between the disk 22 and disk 18 is a spring 30 the tension of which can be varied by adjusting the disk 18 longitudinal of the bore of the body A as will be obvious.

Assuming the parts to be in the position shown in Fig. 1 it will be apparent that no gas can escape from the container 12.

However as soon as the pressure of the gas in the container rises sufficiently to compress the spring 30 the disk 22 will be lifted from its seat and moved outwardly of the inner ends of the grooves 24. As soon as the disk 22 has assumed this position the gas in the container will flow through the notches 23 and groove 24 and discharge to the atmosphere at the outer ends of said grooves, the disk 26 having previously been lifted from its seat as will be obvious. During this operation the escaping gas shall have been ignited by the sparking of the flint member 28 due to the movement of the stem 25. In this manner the escaping gas will be burned as rapidly as same is discharged from the container. As soon as the pressure in the container is reduced sufficiently the spring 30 will react to move the disks 22 and 26 to their seats so as to stop the flow of gas from the container and extinguish the burning thereof at the mouth of the plug.

From the foregoing construction it will be apparent that there has been provided a valve plug for volatile containers which can be accurately set to open at a given pressure and which employs an igniting device the effectiveness of which cannot be in any way impaired by a contact with water or other liquids and which is not subject to deterioration as the result of long standing and non-use.

While one particular form of the invention has been illustrated and described it will be apparent that various changes in construction and arrangement can be resorted to without in any manner departing from the scope of the invention as set forth in the appended claim.

What we claim is:—

A valve for volatile containers comprising a tubular member having the inner end of its bore contracted to form a valve seat and the outer end of its bore enlarged to form a second valve seat, a valve slidable in the bore and engageable against the first named valve seat to close the inner end of the bore and the wall of the bore being provided with a longitudinal groove, a disk threaded in the bore of said member, a stem secured to said valve and slidably engaged through the disk, a second valve secured to the outer end of said stem and engageable against the second valve seat to close the outer end of the bore, and means for yieldingly holding said valves to their respective seats.

In testimony whereof, we affix our signatures, in the presence of two witnesses.

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ANDREW G. BROE.

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