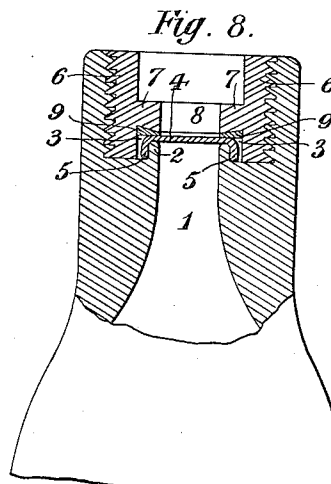
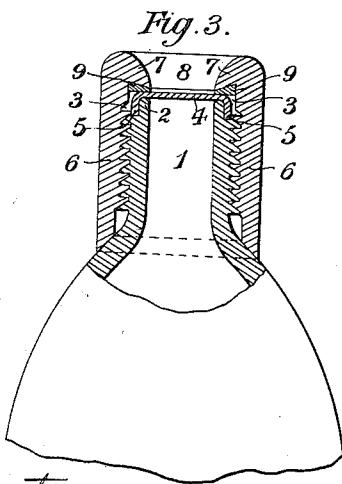
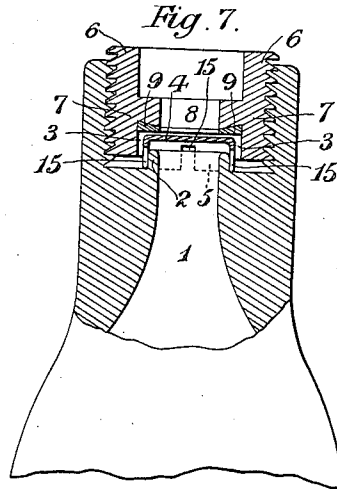
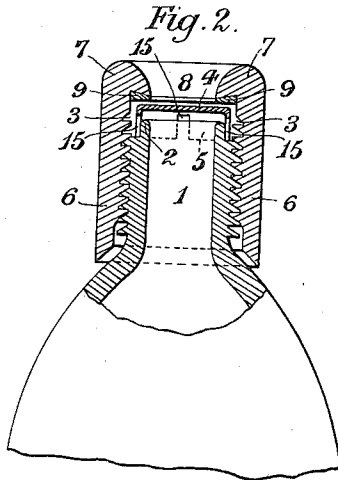
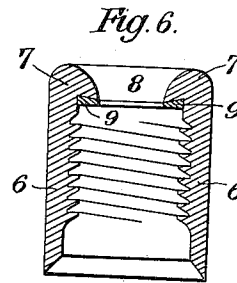
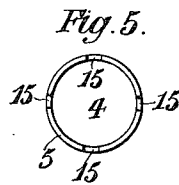
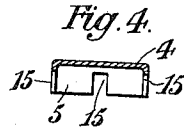
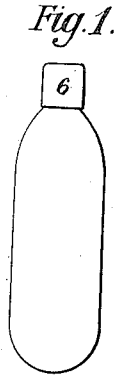


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CLOSURE FOR GAS CONTAINERS.
APPLICATION FILED APR. 22, 1910.

986,135.

Patented Mar. 7, 1911.
2 SHEETS—SHEET 1.



WITNESSES

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Fig. 9.

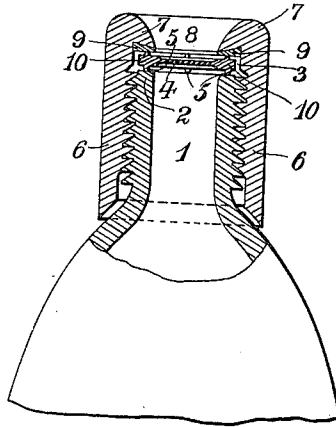


Fig. 10.

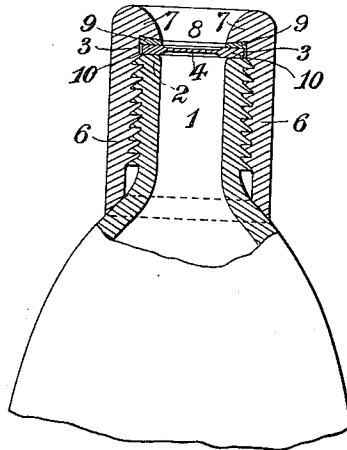
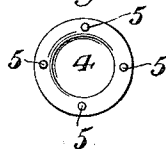


Fig. 11.



Fig. 12.



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UNITED STATES PATENT OFFICE.

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CLOSURE FOR GAS-CONTAINERS.

986,135.

Specification of Letters Patent.

Patented Mar. 7, 1911.

Application filed April 22, 1910. Serial No. 557,083.

To all whom it may concern:

Be it known that I, ROBERT HUNTER CAMPBELL, a subject of the King of Great Britain and Ireland, of Angel Road, Edmonton, in the county of Middlesex, England, have invented a new and useful Closure for Gas-Containers, of which the following is a specification.

My invention relates to containers, or capsules, for compressed, or liquefied gas which is liberated from the containers by piercing a closure, and the object of my invention is to provide containers of the kind commonly known as "sparklets" with improved and very simple and economical closing means which will enable the container body to be used repeatedly with facility and economy.

According to my invention the neck of the container is provided with a closing washer or cap which is capable of being readily perforated and which is loose, and entirely separate from the other parts. A threaded piece with central opening is provided to be screwed onto, or into, the neck of the said container to hold the cap in place. The cap is so formed that while in place and before the threaded piece has been screwed home, passages are afforded to allow the gas to pass from the central opening in the said screwed piece, over and under the cap, and through the neck into the container, while when the said screwed piece is turned home hard, after the container is charged, the cap is pinched or compressed between the said screwed piece and a bearing on, or in, the neck, and the passages thus closed so that said cup forms a tight closure for the container. When the gas has been liberated from the container, by perforating the cap, the threaded piece is unscrewed and the pierced cap is removed and a new one is put in its place to allow of recharging and closing the container as before.

The cap may be made in any suitable way which will leave passages through which gas can pass it in charging the container and which will allow of being pinched down or compressed, upon a seating by fully screwing down the threaded piece so as to close, gas-tightly, these passages. The cap may, for example, be formed with a depending recessed edge or with slight projections on its opposite faces. It is further-more preferably formed with a thin readily perforated mid-portion and with thickened edges, the latter tending to prevent the fracture of

the cap under the pressure of the threaded member.

The accompanying drawings represent constructions in accordance with my invention, but it is to be understood that I do not limit myself to the precise details illustrated.

Figure 1 is an elevation of a closed container; Figs. 2 and 3 are vertical sections, drawn to an enlarged scale of the upper part of the container, Fig. 2 showing the parts in the position when the container is being charged; and Fig. 3 showing the container charged and closed; Figs. 4 and 5 show the closing cap separately in transverse section and plan; Fig. 6 shows the screwed securing piece separately in vertical section; Figs. 7, 8, 9 and 10 show modifications in sections corresponding to Figs. 2 and 3, and Figs. 11 and 12 show, in transverse section and plan respectively, the cap used in the modification Figs. 9 and 10.

Referring to Figs. 1 to 6, the neck 1 of the container is screw-threaded and is formed with a ridge 2 having a space 3 around it. The loose and separate cap 4 is shown as being made with a depending flange 5 having in it openings. When the cap 4 is placed over the ridge 2, the said flange rests upon the bottom of the space 3, and the cap 4 is supported so that it is a little above the ridge 2. A securing piece 6 is screwed upon the neck 1, this piece 6 being provided with an annular inwardly projecting part 7, which lies over the outer part of the cap 4.

A central passage 8 is formed through the said piece 6 and its exterior is adapted to fit into the nozzle of a charging appliance. When the said piece 6 is screwed on before filling the container, it is not screwed fully home but space is left (as shown in Fig. 2) between the part 7 and the cap 4, so that, in charging, the gas can pass from the central opening 8 in the piece 6, over the cap 4 into the space 3, thence through the openings in the flange of the cap 4 and into the container from between the underside of the cap 4 and the ridge 2. When charging has been effected the piece 6 is screwed home onto the neck and forces the cap 4, against the ridge 2, crushing the flange 5 against the bottom of the space 3, so that all passages are closed and the cap is held firmly between the projecting part 7 of the piece 6 and the ridge 2, thus forming a tight closure for the container, as shown in Fig. 3. A loose bearing ring 9 may be provided between the cap

4 and the projecting part 7 of the piece 6, to prevent the cap 4 being dragged around and fractured when the piece 6 is screwed home.

5 Figs. 7 and 8 show an arrangement wherein the piece 6 is screwed into, instead of onto, the neck 1. As the parts which correspond with those shown in Figs. 2 and 3 are marked with the same reference numerals, this modification will be well understood without further description.

10 Figs. 9 and 10 show a modification wherein the cap 4 is stamped up so as to have a thickened edge 10, provided with projections 5, which serve to maintain the passages past the cap 4 in charging, the thickened edges preventing all possibility of the cap being fractured on screwing home the piece 6. When the said piece 6 is screwed home the projections 5 are crushed and the cap 4 is pinched tightly between the edge of the neck of the container and the projection 7 on the piece 6, and thus effects a perfect closure of the container or capsule.

25 When the contents of the container have been used the piece 6 can be readily removed and the pierced cap 4 removed and replaced by a new cap, whereupon the container can be again charged with compressed, or liquefied, gas and be closed as hereinbefore described.

30 Having now particularly described and ascertained the nature of my said invention, and in what manner the same is to be performed, I declare that what I claim is:—

35 1. In containers for compressed gas, an inlet aperture, with surrounding seat for a closure member, a cap closure adapted to be pressed upon said seat, a crushable support for said cap affording an inlet passage beneath the latter to the interior of the container, in combination with a member bearing upon said cap and means for forcing said member down upon said cap to press the latter to its seat by crushing its support, whereby a gas tight closure is effected, substantially as described.

40 2. A container for compressed gas having a threaded neck with seat for a closure member surrounding the inlet aperture of said neck, a cap closure adapted to be pressed upon said seat, a crushable support for said cap affording a passage beneath the latter to the inlet aperture, in combination with a

member bearing upon said cap and threaded 55 to engage said threaded neck, whereby upon screwing down said threaded member said cap may be forced to its seat by crushing its support, substantially as described.

3. A container for compressed gas having 60 a threaded neck with seat for a closure member surrounding the inlet aperture of said neck, a cap closure adapted to be pressed upon said seat, a crushable support for said cap affording a passage beneath the latter 65 to the inlet aperture, in combination with a member with central aperture and inwardly projecting flange bearing upon said cap and threaded to engage said threaded neck, whereby upon screwing down said threaded 70 member said cap may be forced to its seat by crushing its support, substantially as described.

4. A container for compressed gas having 75 a threaded neck with seat for a closure member surrounding the inlet aperture of said neck, a cap closure adapted to be pressed upon said seat, a crushable support for said cap affording a passage beneath the latter 80 to the inlet aperture, in combination with a member bearing upon said cap and threaded to engage said threaded neck, whereby upon screwing down said threaded member, said cap may be forced to its seat by crushing its support, together with a bearing washer 85 interposed between said member and the cap, for the purpose specified.

5. In containers for compressed gas, an inlet aperture with surrounding seat for a closure member, a cap closure adapted to be 90 pressed upon said seat, said cap having crushable supporting projections affording an inlet passage beneath the latter to the interior of the container, in combination 95 with a member bearing upon said cap and means for forcing said member down upon said cap to press the latter to its seat by crushing said supporting projections, whereby a gas-tight closure is effected, substantially as described. 100

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

ROBERT HUNTER CAMPBELL.

Witnesses:

CHARLES W. CROCKER,
H. D. JAMESON.