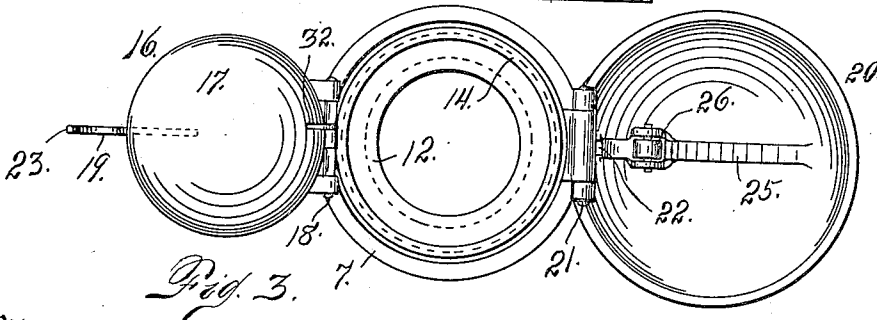
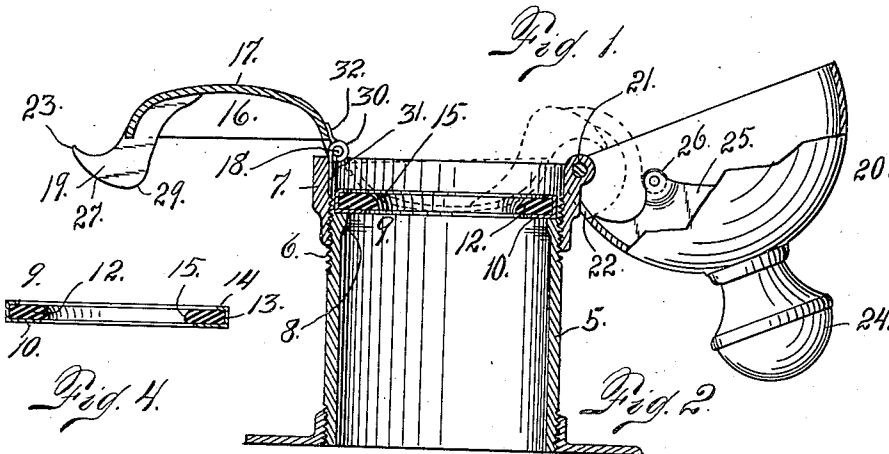
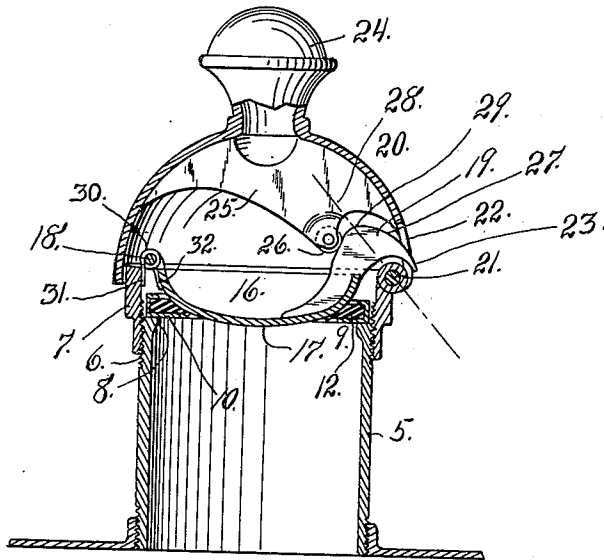


J. V. CRONE.
RADIATOR CAP.
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Patented Jan. 14, 1913.



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RADIATOR-CAP.

1,050,265.

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To all whom it may concern:

Be it known that I, JOHN V. CRONE, a citizen of the United States, residing at Greeley, county of Weld, and State of Colorado, have invented certain new and useful Improvements in Radiator-Caps; and I do 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, reference being had to the accompanying drawings, and to the characters of reference marked thereon, which form a part of this specification.

My invention relates to improvements in radiator caps for automobiles, my object being to provide a construction adapted to efficiently perform the aforesaid function, the device being at the same time quickly and easily applied, and readily adjustable to obtain any desired closeness of fit between the valve or closure proper and the valve seat. The device may at the same time be made ornamental, which is a feature of some importance in view of the fact that the cap of a radiator is exceedingly conspicuous on an automobile. This cap is adjustable on the inlet tube of a radiator, whereby the position of the valve seat, with reference to that of the cap, may be regulated at will.

In my improved construction, the valve or closure proper is adapted to engage a yielding seat supported on top of the filling tube of the radiator, said seat being surrounded and held in place by means of a collar interiorly-threaded to fit the exterior threads of the tube. The valve or closure is provided with a projection adapted to be acted on by the cam of a securing device, which, as illustrated in the drawing, is in the form of an oval cover having a cam member located on the inside thereof and adapted to act on the projection of the valve, the movement of the securing device being such that the engaging part of its cam passes beyond a line cutting the axis of the securing device and the highest part of the projection of the valve. By virtue of this construction, the cover, when it has been placed in the locking or securing position, will maintain such position and is not liable to be opened except by design.

While my improved device is well adapted for use as a radiator cap, it must be understood that it may be employed in other relations.

Having briefly outlined my improved construction, I will proceed to describe the same in detail, reference being made to the accompanying drawing, in which is illustrated an embodiment thereof.

In this drawing: Figure 1 is a vertical section, taken through the inlet tube of a radiator, showing my improved cap applied and in the closed position. Fig. 2 is a view of the same, showing the valve and securing device in the open position. Fig. 3 is a top plan view of the same. Fig. 4 is a detail view of the gasket forming a seat for the valve or closure proper.

The same reference characters indicate the same parts in all the views.

Let the numeral 5 designate the inlet tube of a radiator or other similar device, adapted to receive a closure. The upper extremity of this tube is exteriorly threaded, as shown at 6, and to this threaded portion is secured an interiorly threaded collar 7, which surrounds the upper extremity of the tube, the latter being reinforced, as shown at 8, to form a support for a gasket 9, which is composed of a sheet metal part 10, which is bent to retain an elastic or yielding member 12, the sheet metal support being widest at the bottom, extending upwardly around the elastic member, as shown at 13, and bent to form a circumferentially arranged horizontal flange 14, which engages the yielding member from above. This yielding member is of sufficient width to extend inwardly beyond the metal casing of the gasket, its inner edge being preferably beveled, as shown at 15, to form a seat for a valve 16, which is of concavo-convex construction, its convex surface 17 being lowermost when the valve is closed. This valve is hinged, as shown at 18, to the upper edge of the collar 7, while directly opposite this hinge the valve is provided with a reinforcing web or projection 19, which extends above the valve proper when the latter is seated.

Directly opposite the hinge 18 of the valve, a securing member 20 is hinged to the collar 7, as shown at 21, the securing device being slotted, as shown at 22, adjacent the hinge to allow the pointed extremity 23 of the projection 19 to protrude. As illustrated in the drawing, the securing device is hollow, its exterior surface being semi-spherical, except at the top, where it is provided with an ornamental knob 24, which

also serves as a hand piece for manipulating the device.

Within the hollow portion of the securing device, is located a web or rib 25, which constitutes a cam, the deepest part of the cam member being equipped with an anti-frictional roller 26 adapted to engage the projection 19 of the valve, so that, during the movement of the securing device to the closed position, the anti-frictional roller 26 engages the curved surface 27 of the projection 19 and moves to the position shown in Fig. 1, whereby the roller has passed beyond the "dead center" of the part 19, or beyond a line 28 passed through the axis of the hinge 21 and cutting the highest point 29 of the projection 19. When in this position, the securing device tightly engages the projection 19 of the valve 16 and holds the latter in close contact with the gasket 9, forming a seat for the valve.

The valve is spring actuated to automatically assume the open position, when the securing device is thrown to a corresponding position. This is accomplished by means of a spring 30, which is coiled around the hinge pin, one extremity engaging the collar 7 on the inside, as shown at 31, while the other extremity bears against the valve, as shown at 32.

From the foregoing description, the use and operation of my improved device will be readily understood. In order to apply the device to a radiator tube, or other similar structure where a closure is required, the collar 7 with the valve 16 and the securing device 20 hinged thereto, as heretofore explained, is screwed to the exteriorly-threaded upper extremity 6 of the tube 5. By vertically adjusting the collar upon the tube, the position of the valve seat, with reference to the valve, may be regulated at will and the valve may be seated more or less tightly, as may be required. Assuming that the collar is in place, the valve is first thrown to the position indicated by dotted lines in Fig. 2, after which the securing device 20 is moved toward the left, (referring to Fig. 2), whereby its cam 25, carrying the anti-frictional roller 26, acts upon the curved face of the projection 19 of the roller traveling over the said face to a position beyond the highest or deepest extremity thereof, as heretofore explained. The roller portion of the cam is then beyond the "dead center", as indicated by the dotted line 28, and the valve is securely locked in the closed position.

Having thus described my invention, what I claim is:—

1. In a cap or closure of the class described, the combination with a tube or neck to be closed, of a collar applied to the upper part thereof and longitudinally adjustable

thereon, the said collar extending beyond the open extremity of the tube, a gasket applied to the tube and surrounded by the collar, a valve hinged to the collar and adapted to enter the latter to engagement with the gasket, a projection formed on said valve and a securing device also hinged to the collar and having the cam member engaging a projection formed on the valve to lock the latter in place when the securing device is in the closed position, substantially as described.

2. The combination with a tube of a valve seat near the outer end of the same, a valve hinged to the tube and adapted to fold down upon the valve seat, a cam projection extending upwardly from the said valve, a cover hinged to the tube opposite the hinge of the valve, and a projection extending downwardly from said cover and adapted to engage the projection of the valve upon the side adjacent the hinge of the latter.

3. The combination with a tube or neck to be closed, of a collar threaded to the outer extremity of the said tube or neck and longitudinally adjustable thereon, the collar protruding beyond the outer extremity of the tube, the latter being equipped with a detachable valve seat, a valve hinged to the collar at the outer extremity of the latter and having a convex inner surface adapted to enter the collar into engagement with the seat, a projection formed on said valve and a securing device equipped with a cam adapted to engage the projection on the valve for closing purposes, substantially as described.

4. The combination with a tube or neck to be closed, of a collar threaded thereon and longitudinally adjustable to vary the distance which the collar projects beyond the outer extremity of the tube, the latter being equipped with a yielding valve seat beyond which the collar also projects, leaving a valve chamber beyond the seat, a valve hinged to the collar and adapted to enter the latter, into engagement with the seat, and a securing device provided with a cam equipped with an anti-frictional roller, the valve having a cam projection which the roller engages, the roller passing beyond the dead center position when the securing device is closed, substantially as described.

5. A closure comprising in combination with a tubular device a collar threaded on the outer extremity of the device and longitudinally adjustable thereon, the said device being equipped with a valve seat which the collar surrounds, a valve hinged to the collar and adapted to enter the protruding portion of the latter to engagement with the valve seat, the valve having a projection extending beyond the collar when the valve is seated, and a hollow securing device semi-

spherical in shape and provided with a
hand piece, the said securing device being
equipped with a web constituting a cam and
equipped with an anti-frictional roller
5 adapted to engage the projection on the
valve and assume a position beyond the dead
center, substantially as described.

In testimony whereof I affix my signature
in presence of two witnesses.

JOHN V. CRONE.

Witnesses:

STELLA RUNDLE,
C. C. WASHINGTON.