Dec. 9, 1930. E. PERSSON 1,784,198

CLOSURE CAP FOR RADIATORS, WATER TANKS, PRESSURE TANKS, GAS TANKS, AND THE LIKE

Filed July 20, 1929

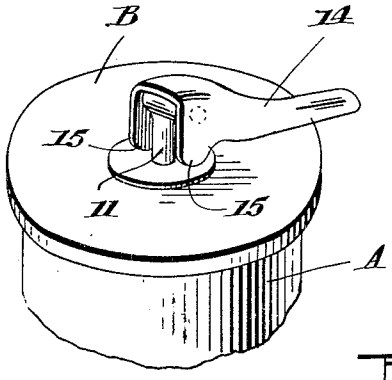


Fig. 1.

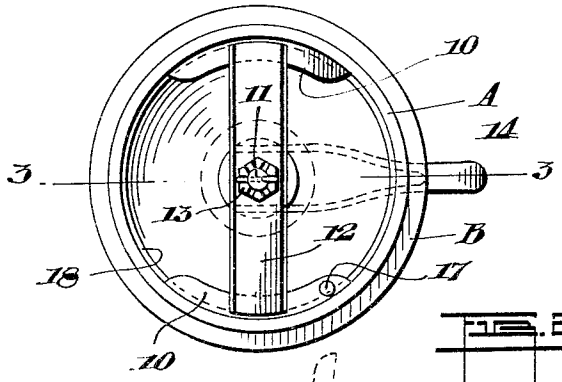


Fig. 2.

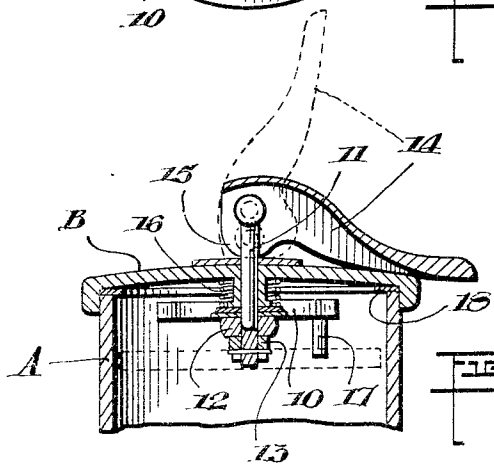


Fig. 3.

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UNITED STATES PATENT OFFICE

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CLOSURE CAP FOR RADIATORS, WATER TANKS, PRESSURE TANKS, GAS TANKS, AND THE LIKE

Application filed July 20, 1929, Serial No. 379,786, and in Canada May 28, 1929.

This invention relates to improvements in closure caps, for radiators, water tanks, pressure tanks, gas tanks, and the like and the object of the invention is to provide an improved closure cap which will be of simple and inexpensive construction and which will form a very secure closure for the filler opening of an automobile radiator or the like, and which will be very securely held in position when locked but which may be very readily and conveniently removed for filling purposes.

The invention consists in the construction and arrangement, all as hereinafter more particularly described, and illustrated in the accompanying drawings in which,

Figure 1 is a perspective view of the improved cap detached from a radiator.

Figure 2 is a bottom plan view of the improved cap in the locked position.

Figure 3 is a transverse vertical section on the line 3—3 of Figure 2 with the cap shown right side up, the cap being shown in the locked position in full lines and in the unlocked position in broken lines.

In the drawings like characters of reference indicate corresponding parts in the various figures.

The improved closure cap comprises a cylindrical seat portion A and a closure cap B therefor. The seat portion A is formed with diametrically opposed circumferentially spaced apart inwardly projecting ledges 10 on its inner periphery and these ledges are spaced downwardly from the top or mouth of the seat A.

Extending freely through an orifice at the centre of the cap B is a plunger 11 which plunger is disposed axially of the seat portion A.

Rigidly secured to the bottom end of the plunger 11 is a bar 12 which bar is secured to the plunger centrally of its length. The bar 12 may be secured to the plunger in any desired way, as for instance by a nut 13, but the connection is such that the bar is rigidly secured to the plunger so that it is turned when the plunger is turned.

Hingedly connected to the upper end of the plunger 11 is an operating lever 14, the axis of the hinged connection being perpendicular to the axis of the plunger 11 so that the plunger may be turned about its axis by means of the lever 14.

The lever 14 is formed with cam portions 15 adapted to operatively engage the outer or upper face of the cap B.

Encircling the plunger 11 is a coil spring 16 the upper end of which engages the under face of the cap and this spring normally operates to urge the plunger downwardly and with it the bar 12 and to maintain the cam portions 15 in operative engagement with the upper face of the cap B.

The construction is such that it will be apparent that if the operating lever 14 is oscillated about its hinged connection, between the locked position shown in full lines in Figure 3 and the unlocked position shown in broken lines in Figure 3, the plunger 11 and the bar 12 will be raised and depressed.

Depending from the under side of one of the ledges 10 is a pin 17 which lies in the path of the bar 12 during its turning movement and forms a stop limiting the turning freedom of the bar, as will be presently explained.

Carried by the under face of the cap B is an annular rubber washer 18 adapted to engage the upper edge of the seat A.

Consider the cap to be in the locked position as illustrated, in which case the operating lever 14 is depressed so that the plunger is raised and the lever 14 is turned so that the bar 12 is positioned to underlie the ledges 10 and in this position, by the depression of the operating lever 14 and the raising of the plunger 11 and the bar 12, the bar is pulled upwardly against the ledges 10 and the cap

is securely held in position tightly against the seat A.

When it is desired to remove the cap all that is necessary to be done is to raise the operating lever 14 into the broken line position shown in Figure 3 in which operation the spring 16 depressed the plunnger 11 and with it the bar 12 so as to free this bar from engagement with the ledges 10. The operating lever is then turned in a horizontal plane through 90 degrees so that the plunger 11 is likewise turned about its own axis and with it the bar 12 is turned so as to clear the ledges 10 after which the cap may be readily removed from the seat.

In replacing the cap it is simply placed upon the seat with the lever in the raised position and this lever is turned back into the position illustrated in Figure 2 so that the ends of the bar 12 move under the ledges 10. The lever 14 is then depressed into its locked position shown in Figure 3 so that the bar 12 is drawn upwardly into its locked position to engage the under face of the ledges 10 and securely hold the cap in position.

The depending pin 17, it will be appreciated, forms a stop which will limit the turning freedom of the bar 12 when being moved into the locked position as in this movement one end of the bar 12, if moved beyond the position shown in Figure 3, will strike this pin 17 before the bar clears the ledges.

From the foregoing it will be appreciated that the invention provides an improved closure cap whereby the objects set forth have been attained.

Various modifications may be made in this invention without departing from the spirit thereof or the scope of the claims, and therefore the exact form shown is to be taken as illustrative only and not in a limiting sense, and it is desired that only such limitations shall be placed thereon as are disclosed in the prior art or are set forth in the accompanying claims.

What I claim as my invention is:—

1. A closure of the class described comprising in combination, a cylindrical seat portion and a removable closure cap therefor, diametrically opposed circumferentially spaced apart, inwardly projecting ledges on the inner periphery of the seat portion and spaced from the mouth thereof, a plunger extending freely through a central orifice in the cap and disposed axially of the seat, a bar perpendicular to the plunger and rigidly secured centrally of its length to the inner end of the plunger, the ends of said bar adapted to underlie the aforesaid ledges, an operating lever hingedly connected to the outer end of the plunger, the axis of the hinge connection being perpendicular to the axis of the plunger whereby the plunger may be turned about its axis by means of the lever, a coil spring encircling the plunger and normally depressing the plunger to maintain the lever against the outer face of the cap and urge the bar away from the cap, the lever formed with a cam portion operatively contacting with the outer face of the cap whereby oscillation of the lever about its hinge connection raises and depresses the plunger.

2. In a device according to claim 1, a stop carried by one of the ledges and adapted to limit the freedom of rotation of the bar.

In witness whereof I have hereunto set my hand.

EDWIN PERSSON.