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R. S. HALL

RADIATOR OR OTHER CAP

Filed July 12. 1922

அதி. 1.

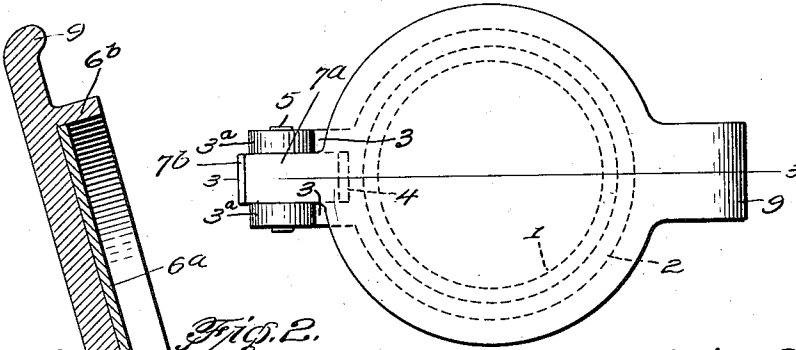
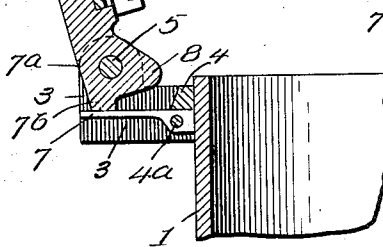


Fig. 2.



தந்தி. 3.

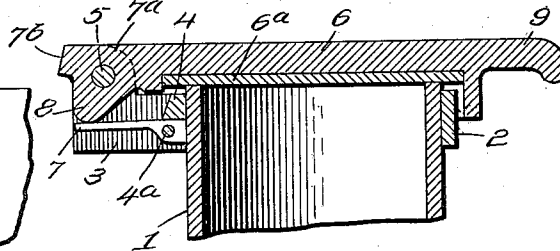
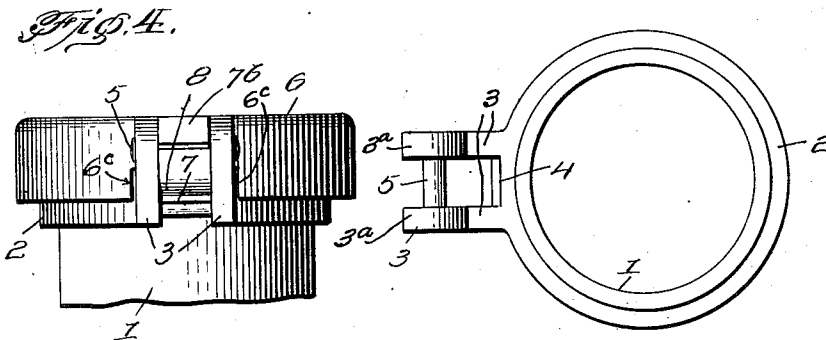


Fig. 5.



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ROBERT S. HALL, OF CORNING, NEW YORK.

RADIATOR OR OTHER CAP.

Application filed July 12, 1922. Serial No. 574,445.

To all whom it may concern:

Be it known that I, ROBERT S. HALL, a citizen of the United States, residing at Corning, in the county of Steuben and State of New York, have invented certain new and useful Improvements in Radiator or Other Caps, of which the following is a specification.

This invention has reference to caps for radiators or gasoline tanks or the like, and its object is to provide a self-closing cap for the purpose which will hold its position against displacement under normal conditions of use and at the same time avoiding the necessity of employing screw threads to hold the cap in place.

In an automobile radiator, the cooling tank is provided with a cap which is usually screwed into place, and whenever the radiator is emptied or filled, the cap must be unscrewed and subsequently screwed into place, and the same is true with respect to a gasoline tank where leakage cannot be tolerated.

In the filling tubes of radiators and gasoline or other tanks, the cover member or plug is customarily screwed into place, but in accordance with this invention, the cap is so constructed that it will automatically move into tight relation to the filling tube, closing the same and preventing evaporation or other losses of the contents.

In an automobile, it is not infrequently the experience that steam is generated in the radiator and some pressure may there occur which, when the cap is not a screw threaded cap, will force the cap open. In the case of the gasoline tank considerable pressure may occur due to evaporation of the gasoline and the effect of the pressure due to evaporation must be counteracted to avoid losses.

In accordance with the invention, the filling tube may be of usual construction, soldered or riveted into place and a closing cap is provided with a hinge connection between the cap and the filling tube. The cap is provided with a gasket serving to practically hermetically seal the junction of the cap and the filling tube and the cap is provided with a cam coacting with a spring which will snap and hold the cap in closing position or temporarily hold the cap in the open position, the spring providing sufficient pressure against the internal pressure in the radiator or can to overcome

the effects of the generation of steam or the pressure due to evaporation.

The invention will be best understood from a consideration of the following detailed description taken in connection with the accompanying drawings, forming part of this specification, with the understanding that the invention is not confined to any strict conformity to the showing of the drawings, but may be changed and modified so long as such changes and modifications mark no material departure from the salient features of the invention as expressed in the appended claims.

In the drawings:—

Figure 1 is a plan view of the cap, which for convenience of description may be considered as a radiator cap of an automobile.

Fig. 2 is a vertical section of the radiator cap and filling tube with the cap in the open position.

Fig. 3 is a section on the line 3—3 of Fig. 1.

Fig. 4 is a rear elevation of the radiator cap.

Fig. 5 is a plan view of the filling tube and the ring for supporting the radiator cap, the latter being omitted from the figure.

Referring to the drawings, 1 indicates a filling tube for an automobile radiator or a container, and which has secured therewith, in proximity to its upper end, an annular member or ring 2, which is provided with a pair of laterally disposed parallel spaced wings 3 having the inner termini thereof formed integral with what may be termed a coupling bar 4, which is flush with the outer edges of the wings 3 and body of the ring 2, and the lower face of the bar 4 is spaced above the lower edges of the wings 3. The bar 4 not only constitutes a coupling means to form the annular member of one piece, but also constitutes an abutment for the inner end of a spring 7 to be hereinafter referred to. Each of the wings 3, at its outer end, is provided with a curved enlargement which projects above the upper end of the tube 1, and said enlargements are indicated at 3^a.

Spanning the space between the enlargements 3^a, as well as having its ends secured in said enlargements, is a pin 5 which constitutes means for hinging a cover 6 to the wings 3. The cover 6 is formed with a depending annular rim 6^b of a diameter to ex-

tend over and project from the upper end of the filling tube 1. The rim 6^b is cut away as at 6^c to provide a clearance for the wings 3, when the cover is shifted to closed position, as well as to open position, as illustrated in Figures 2 and 3 of the drawings. The cover 6 is provided with a lining 6^a of rubber or other suitable composition of a character to withstand to an extent the effects of heat when the cover is employed to close the upper end of the filling tube of a radiator or to withstand the effects of gasoline or other like material when the cover is used in conjunction with the gasoline tank or the like.

Fast between the brackets 3 is a spring 7 carried by a pin 4^a and bearing at its inner end against the bar 4 and at the other end reaching to near the outer end of the wings 3. The cover 6 is provided with an extension 7^a at one side forming one member of a hinge and through which extends the pin 5 whereby the cover is pivotally connected with the enlargements 3^a of the wings 3. The extension 7^a is of a width to project in the space formed between the wings 3 when the cover 6 is shifted to open position. Formed integral with the inner face of the extension 7^a, at a point inwardly with respect to the free end of said extension 7^a, is a cam 8 positioned in the path of the outer end of the spring 7. The cam end is so related to the spring 7 that when the cover is opened, the spring will prevent the free end of the extension 7^a and the cover from closing and when the cover is closed, the cam will engage the spring and lock the cover in closed position against opening under ordinary conditions of use.

In order to cause the cover 6 to make a tight fit with the upper end of the filling tube 1, such upper end is machined or smoothed so as to bear evenly against the rubber lining 6^a on the cover.

At the side of the cover 6 remote from the cam 8 there is provided a manipulating handle 9 by means of which the cover may be moved to the open position.

What is claimed is:—

1. In a cap for automobile radiators and the like, a filling tube, a ring carried exteriorly of the outer end of the filling tube, and provided with outwardly disposed radial hinge members, a flat spring lodged between the hinged members below the top thereof, and a cap for the outer end of the filling tube carrying a cam at one end in position to engage the spring, a sealing gasket in position to engage the end of the filling tube and a handle member on the side of the cap remote from the hinge.

2. A closure cap for the purpose described comprising the combination with a filling tube, of a pair of spaced wings radially disposed with respect to and arranged exteriorly of the upper end of said tube, a

closure formed with an extension of a width to project between the wings when the closure is shifted in one direction, said extension having its inner face formed with a cam operating between the wings, means for hinging said extension to said wings, and a spring fixedly secured to and arranged between said wings and having its outer end engageable by the cam to maintain the cover closed and further engageable by the outer end of the extension to maintain the cover open.

3. A closure cap for the purpose described comprising the combination with a filling tube, of a pair of spaced wings radially disposed with respect to and arranged exteriorly of the upper end of said tube, a closure formed with an extension of a width to project between the wings when the closure is shifted in one direction, said extension having its inner face formed with a cam operating between the wings, means for hinging said extension to said wings, and a flat spring arranged between and having its inner end secured to said wings and its outer end engageable by the cam to maintain the cover closed and further engageable by the outer end of the extension to maintain the cover open, said cover provided with a clearance for said wings and further carrying on its inner face a sealing element.

4. A closure cap for the purpose set forth comprising the combination with a filling tube of a pair of spaced wings radially disposed with respect to and arranged exteriorly of the upper end of the tube and each having its outer portion formed with an upstanding enlargement, a closure provided with an extension of a width to project between the wings when the closure is shifted in one direction, said extension having its inner face inwardly with respect to its free end provided with a cam operating between the wings, means for hinging said extension at a point above said cam to said enlargements, and a flat spring arranged between said wings and having its inner end fixed to said wings and its outer end positioned in the path of the free end of the extension and said cam and further engageable by the cam to maintain the cover closed and by the outer end of the extension to maintain the cover open.

5. A closure cap for the purpose set forth comprising the combination with a filling tube, of a pair of spaced wings radially disposed with respect to and exteriorly of the upper end of the tube and each having its outer portion formed with an upstanding enlargement, a closure provided with an extension of a width to project between the wings when the closure is shifted in one direction, said extension having its inner face inwardly with respect to its free end provided with a cam operating between the

wings, means for hinging said extension at a point above said cam to said enlargements, and a flat spring arranged between said wings and having its inner end fixed to said wings and its outer end positioned in the path of the free end of the extension and said cam and further engageable by the cam to maintain the cover closed and by the outer end of the extension to maintain the cover open, said cover provided with a clearance for said wings and further having arranged against its inner face a sealing element.

6. A closure cap for the purpose set forth comprising the combination with a filling tube, of a cover for closing the upper end of said tube and formed with a rim and a pair of diametrically opposed extensions positioned above the rim, one of said extensions having its inner face provided with a cam positioned inwardly with respect to the free end of said extension, a pair of radially disposed wings arranged near the top and exteriorly of said tube and positioned in spaced relation, that extension provided with the cam and the cam operating in the space between said wings, means for hinging that extension provided with the cam inwardly of its outer end to said wings, and a spring positioned between the wings and having one end fixed to the inner ends of said wings below the top thereof and its other end engageable with the cam to maintain the cover closed and by the free end of that extension provided with the cam to maintain the cover open.

7. A closure cap for the purpose set forth comprising the combination with a filling

tube, of a cover for closing the upper end of said tube and formed with a rim and a pair of diametrically opposed extensions positioned above the rim, one of said extensions having its inner face provided with a cam positioned inwardly with respect to the free end of said extension, a pair of radially disposed wings arranged near the top and exteriorly of said tube and positioned in spaced relation, that extension provided with the cam and the cam operating in the space between said wings, means for hinging that extension provided with the cam inwardly of its outer end to said wings, and a spring positioned between the wings and having one end fixed to the inner ends of said wings below the top thereof and its other end engageable with the cam to maintain the cover closed and by the free end of that extension provided with the cam to maintain the cover open, said rim provided with a clearance for said wings, and a sealing element inclosed by the rim.

8. A closure cap for the purpose set forth comprising the combination with the filling tube, of a ring carried by the outer end of the tube and provided with a pair of radially disposed wings, a spring positioned between said wings and having its inner end fixed, and a closure for the outer end of said tube, said closure provided with a cam engageable with said spring for maintaining the closure in closed position.

In testimony whereof, I affix my signature hereto.

ROBERT S. HALL.