W. McARTHUR, JR.

RADIATOR CAP.

APPLICATION FILED MAY 2, 1919.

1,345,379.

Patented July 6, 1920.

2 SHEETS—SHEET 1.

Fig. 1.

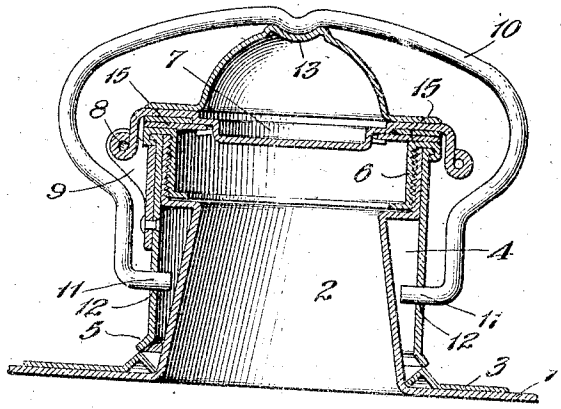


Fig. 2.

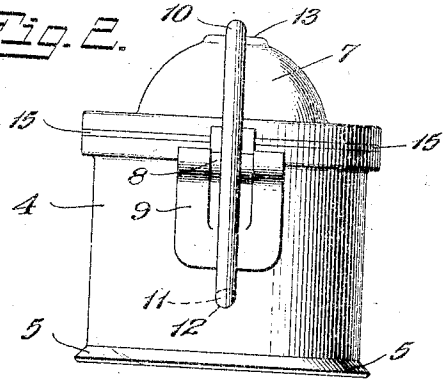


Fig. 3.

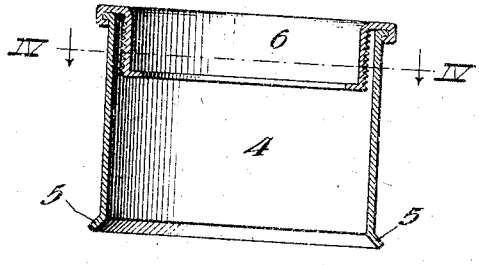
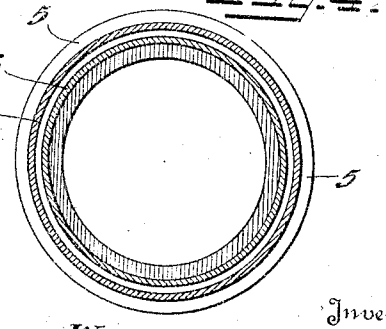


Fig. 4.



Inventor

Warren McArthur Jr,

By Munday Clarke & Carpenter

Attorneys

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2 SHEETS—SHEET 2.

Fig. 5.

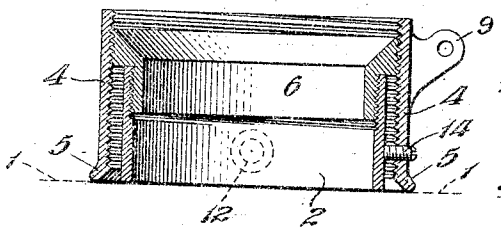


Fig. 6.

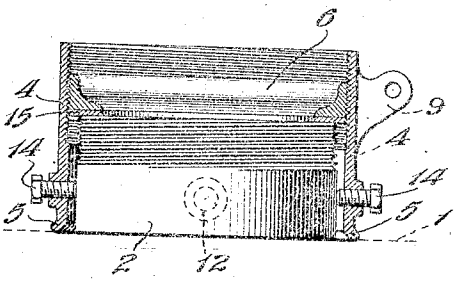


Fig. 7.

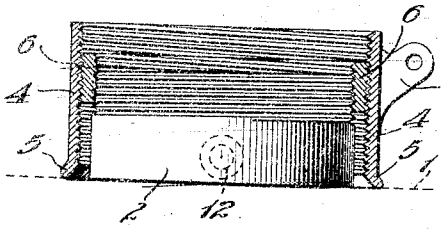
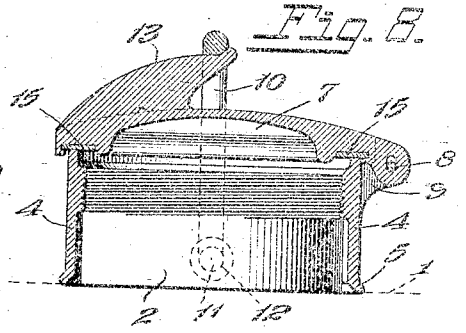


Fig. 8.



Inventor

Warren McArthur Jr,

By Munday Clarke & Carpenter

Attorneys

UNITED STATES PATENT OFFICE.

WARREN McARTHUR, JR., OF PHOENIX, ARIZONA.

RADIATOR-CAP.

1,345,379. Specification of Letters Patent. Patented July 6, 1920.

Application filed May 2, 1919. Serial No. 294,240.

To all whom it may concern:

Be it known that I, WARREN McARTHUR, Jr., a citizen of the United States, residing in Phoenix, in the county of Maricopa and State of Arizona, have invented a new and useful Improvement in Radiator-Caps, of which the following is a specification.

My invention relates to caps or closures for automobile radiators and the like, including such tanks and receptacles as it is adapted for, and has for its principal objects to provide as an article of manufacture a tank-closing device which may be readily applied to the necks of various standard forms of radiators, either when the parts are originally assembled in manufacture or to replace an originally provided cap which has been lost or removed; also to thereby improve the artistic appearance of the radiator and automobile and make much more convenient the opening and closing of the neck through which access is had to the interior of the receptacle, for filling and other purposes.

With such objects in view, as well as other advantages which may be incident to the use of the improvements, the invention consists in the parts and combinations thereof hereinafter set forth and claimed, with the understanding that the several necessary elements constituting the same may be varied in proportions and arrangement without departing from the nature and scope of the invention.

In order to make the invention more clearly understood there are shown in the accompanying drawings means for carrying the same into practical effect, without limiting the improvements, in their useful applications, to the particular constructions which, for the purpose of explanation, have been made the subject of illustration. In the said drawings:—

Figure 1 is a vertical sectional view of a portion of a radiator and casing of a standard or conventional form, having applied thereto a cap embodying my invention.

Fig. 2 is an elevation of the cap.

Fig. 3 is a vertical sectional view of the sleeve.

Fig. 4 is a cross section on line IV—IV of Fig. 3.

Fig. 5 is a vertical section of a radiator neck and of the sleeve and its securing means, the securing ring or flange being in this instance screwed within the sleeve.

Fig. 6 is a similar view, in which the ring is screwed within the sleeve and bears on the top of the sleeve, the sleeve being secured to the neck by set screws.

Fig. 7 is a similar view, the ring being screwed within the sleeve and to the exterior of the neck.

Fig. 8 is a similar view, partly in elevation, the sleeve being screwed directly to an exteriorly screw threaded neck.

Referring to the drawings, 1 is the radiator body, 2 the neck thereof and 3 the radiator casing, these parts being such as are in common use or of any improved and suitable construction.

4 is the sleeve of my cap or closure made open at the top and bottom and adapted to be applied to the neck 2 so as to inclose the same, and preferably to bear on the casing 3 and clamp the same at points around the base of the neck. A somewhat resilient bearing of the sleeve on the casing may be obtained by forming the sleeve of a relatively thick sheet metal drawn or spun into shape and providing its lower edge with an out-turned flange 5; but the sleeve may be of cast metal, and may bear directly on the radiator body or tank. 6 is a flange or ring formed with or suitably crimped to or screwed without or within the upper part of the sleeve and (as constructed in Fig. 1) depending within and spaced from the same so as to fit within the top of the neck 2.

7 indicates the cover for the top of the sleeve, the same being constructed so as to be easily opened and closed. A cover screwed within or without the neck is likely at any time to stick, from various causes, and cause trouble and delay in opening or in closing, and the cover 7 is preferably hinged to the sleeve by a pivot 8 carried by an ear or ears 9, the latter being formed with the sleeve or attached thereto. 10 is a bail of stiff resilient wire or metal rod-section, formed to suitable shape, pivotally connected with the sleeve by end pivots 11 entering perforations 12 through the sleeve, and bearing on a cam-like projection 13 of the cover. By my improved cap or closure I am able to readily replace screw-covers which have been found objectionable with those which are much more easily and quickly operated. I am aware that a hinged cover and securing

bail therefor are well known, and I do not claim these elements otherwise than in combination with my open-ended attachable sleeve for the purpose described. The cover is preferably provided with a gasket 15 of suitable material to improve the tightness of the closure.

Various means may be used for securing the sleeve in place. In the construction illustrated in Fig. 1 the neck 2 is formed with an interior screw thread, and the exterior of the flange 6 is formed with a corresponding screw thread engaging that of the neck. But set screws could be employed, screwing through the sleeve and bearing against the neck, such set screws being shown at 14 (Figs. 5 and 6). In case the screw thread of the neck were exterior the sleeve 4 would be correspondingly threaded on its interior (Figs. 6 to 8), and in such construction the flange 6 could be dispensed with; or it could be in the form of a ring screwing within the sleeve and bearing on the top of or within the neck (Figs. 6 and 5 respectively).

It will be understood that my cap is made in standard sizes a few of which will be sufficient to comprise all standard sizes of radiator necks.

The sleeve 4 need not fit against the neck but may be spaced therefrom (Figs. 5 to 8), as may happen in applying my closure to various diameters of necks. I may make the sleeve 4 and the cover of one standard diameter to include all or nearly all diameters of necks, and with such sleeve employ various sizes of rings screwing within the sleeve, and screwing within or without the neck according to the type of the latter, such rings serving to span the space between the sleeve and neck and to center the sleeve relative to the neck.

In Figs. 5 to 8 I have illustrated both interiorly and exteriorly screw threaded necks with various forms of sleeves and securing rings or flanges. I may state that the screw threads and any securing means adopted shall admit of the necessary range of vertical adjustment of the sleeve relative to the neck, so as to properly inclose the neck and bring the bottom of the sleeve down on the radiator or casing thereof. The perforation of the sleeve is not objectionable because the sleeve is supplemental to the neck, and the latter is imperforate and steam tight.

My invention does not exclude what may be called a loose cover (not hinged) which rests on the top of the sleeve and may be lifted entirely off, or may be tightly pressed down by the bail or suitable securing means.

What is claimed is—

1. A cap for radiators having, in combination, a sleeve open at the bottom and top, means at the top of the sleeve for securing the same to the neck of the radiator, the sleeve depending thence free of and housing the lower part of the neck, and a cover for the top of the sleeve hinged directly to the upper end of the same.

2. A cap for radiators, consisting of the combination of a sleeve open at the bottom as well as at the top and adapted to be applied to the neck of the radiator and to inclose the same to the base of the neck, the lower portion of the sleeve being spaced from and housing the neck, means for securing the sleeve in position, a cover for said sleeve hinged directly to the upper end thereof, and means for securing the cover tightly in closed position.

3. An attachable cap for radiators which are provided with necks, consisting of the combination of a sleeve open at the bottom as well as at the top and inclosing the neck of the radiator to the base of the same, means for securing the sleeve in place, a hinged cover closing the top of the sleeve, and provided with a cam-like projection, and a bail attached to the sleeve and engageable with said projection to close the radiator.

4. The combination of a radiator casing, a radiator within the same having a neck projected through the casing, a sleeve open at the bottom and top and inclosing said neck and bearing on the casing around the base of the neck, means for securing the sleeve to the neck, and a cover for the top of the sleeve.

5. An attachment cap for radiators, consisting of the combination of a sleeve open at the bottom and top and adapted to be applied around a radiator neck and extending to the base of the neck, said sleeve having a flange adapted to fit within the upper end of said neck, means for securing the sleeve to said neck, and a cover for the top end of the sleeve.

6. An attachable cap for radiators, consisting of the combination of a sleeve open at the bottom and top, a flange secured to the sleeve and depending within the same and having an exterior screw thread which is spaced away from the interior of the sleeve, and a hinged cover for the top of said sleeve.

7. The combination of a radiator neck having an internal screw thread, a sleeve inclosing said neck and extending to the base of the same and having a flange depending within the neck and screwed to said screw thread thereof, and a hinged cover for said sleeve.

8. The combination of a radiator having a neck formed with a screw thread, a sleeve open at the top and bottom and extending to the base of the neck, a movable cover for the top of said sleeve, and a ring attached to the sleeve within the same and formed with a screw thread which is engaged with the screw thread of the neck, the

sleeve being vertically adjustable relative to the neck.

9. The combination of a radiator having a neck formed with a screw thread, a sleeve open at the top and bottom and extending down on the outside of the neck, a movable cover for the top of said sleeve, and a ring within the sleeve and attached to the same and formed with a screw thread which is engaged with the screw thread of the neck, the sleeve being vertically adjustable relative to the neck.

In testimony whereof I affix my signature.

WARREN McARTHUR, JR.