

A. C. GAYNOR.
RADIATOR CAP INSERT.
APPLICATION FILED DEC. 22, 1919.

1,360,388.

Patented Nov. 30, 1920.

Fig. 1.

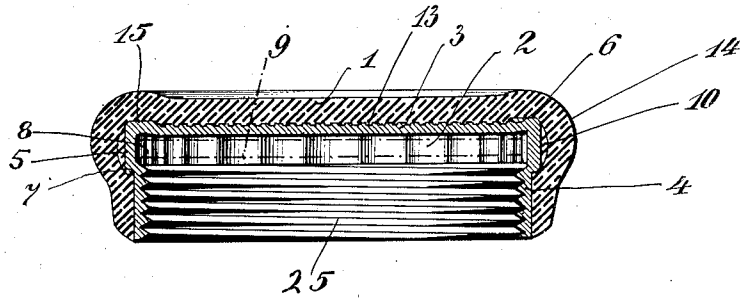


Fig. 2.

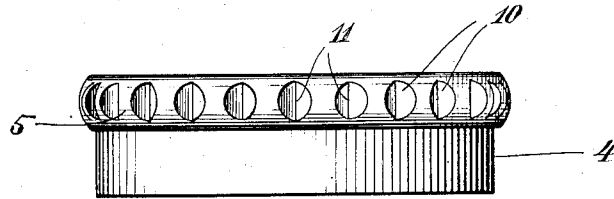
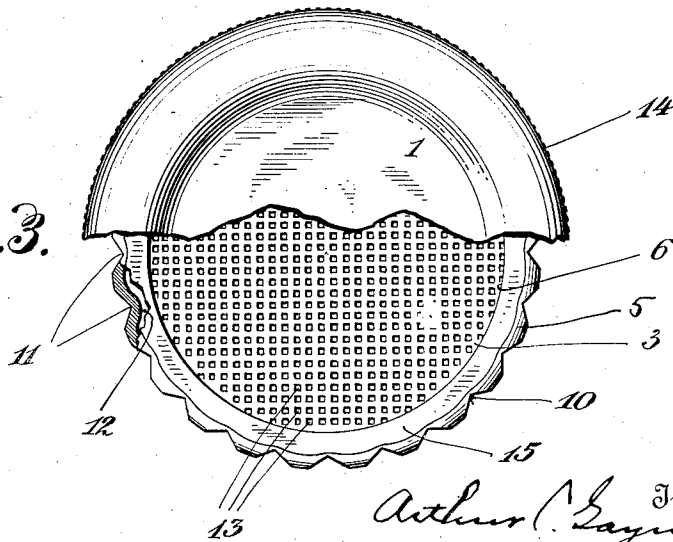


Fig. 3.



Arthur C. Gaynor Inventor
By *in* Attorney
Cornelius C. Billings

UNITED STATES PATENT OFFICE.

ARTHUR C. GAYNOR, OF STRATFORD, CONNECTICUT.

RADIATOR-CAP INSERT.

1,360,388.

Specification of Letters Patent. Patented Nov. 30, 1920.

Application filed December 22, 1919. Serial No. 346,523.

To all whom it may concern:

Be it known that I, ARTHUR C. GAYNOR, a citizen of the United States, and a resident of Stratford, county of Fairfield, State of Connecticut, have invented certain new and useful Improvements in Radiator-Cap Inserts, of which the following is a specification.

This invention relates primarily to radiator closures or caps for automobiles, but it has application in general to the type of article of manufacture in which a metallic insert, nucleus, frame or core imparts mechanical strength to and furnishes an anchoring means for a molded body.

One of the objects of the invention is to provide an article of the above type of pressed metal which is light and durable in construction.

Another object is to provide an article of the type mentioned which shall be easy to manufacture, and in which the molded parts shall yet be firmly and reliably anchored with respect to the insert portion.

Other objects will be in part obvious, in part pointed out hereinafter.

The invention accordingly consists in the features of construction, combination of elements, and arrangement of parts, which will be exemplified in the construction hereinafter set forth, and the scope of the application of which will be pointed out in the following claims.

In the accompanying drawings wherein is shown one of various possible embodiments of the several features of this invention;

Figure 1 is a view in longitudinal transverse section of a radiator closure embodying my invention, the location of the gasket being indicated in dotted lines.

Fig. 2 is a side elevation of the insert or metallic frame portion of the closure.

Fig. 3 is a top view of the insert, partly in section, a portion of the molded body being shown broken away.

Referring now to the drawings, I have shown a radiator closure or cap formed of a molded body portion preferably of vulcanite which may be fashioned in any of the well known ornamental shapes. This body by preference has a milled gripping edge by which it may readily be manipulated in the application and removal of the closure from the radiator. This vulcanite portion is preferably molded about a metallic insert

in the form of a cap 2 having a base 3 and a flange 4. The inner portion of the flange is threaded as at 25 for cooperation with the usual threaded filling pipe (not shown) upon the radiator (not shown).

The metallic insert 2 is formed of pressed metal, the metal of the flange adjoining the base 3 being pressed outwardly to form a bead 5. By preference one lateral edge of the bead extends inwardly of the periphery of the insert base as at 6, whereby the main portion of the base 3 is countersunk, the upper portion of the bead forming a ridge encircling the base, as clearly shown in Figs. 1 and 2. The other lateral edge of the bead is shown at 7 as intermediate the top and bottom of the insert 2. A ledge 8 is formed within the cap immediately above the threads 25 to prevent falling out of the usual water tight gasket 9 which in my construction is disposed inside the bead 5, as shown.

The bead is preferably pressed with a plurality of equi-distant indentations 10, each indentation being preferably V-shaped in cross section, as shown at 11 in Fig. 3, the ridge of the V extending at right angles to the base 3. Corresponding to these indentations there are of course elevations 12 in the inside of the cap with apices less sharp than the ridges of the V-shaped depressions. The bead is thus corrugated both externally and internally. If desired, the bead may be milled on the outside only, but I prefer the construction shown and described.

The upper counter sunk portion of the cap is preferably formed with a multiplicity of small, shallow depressions 13 uniformly distributed throughout the area of said portion.

It will be seen that my metallic insert frame or core for the radiator cap may be readily stamped and formed from a flat sheet of metal, and that the bead and the corrugations therein may readily be formed in the same process by well-known methods. The thread 25 is preferably cut into the cap by an operation separate from the stamping and forming.

In the process of manufacturing the radiator closure or cap, the vulcanite or equivalent material is molded about the entire outside surface of the metallic cap. By pressure the body of vulcanite is brought into intimate contact with every depression and elevation in the surface of the cap.

It will be seen by reference to Fig. 1 that the bead 5 constitutes an effective anchoring means against the separation of the vulcanite body from the metallic frame, since the bead is of larger diameter than the inner diameter of the molded flange.

The vulcanite in the process of molding the same in place enters the V-shaped depression 11, and is thereby firmly anchored against rotation relative to the metallic frame or core portion.

The pressure exerted upon the vulcanite in the process of molding also causes the same to fill the various depressions 13 in the insert base, thus bringing about intimate connection between the flat portion of the molded body and the base 3 of the insert.

The ridge 15 on the bead 5 constitutes an effective core, anchor and reinforce for the milled grip portion 14 of the molded body.

The inner portion of the bead as above noted lodges the usual form of gasket 9, the shoulder 8 in the frame portion preventing the gasket from falling out of the cap. The corrugations 12 in the inner surface of the bead constitute gripping surfaces for the gasket, preventing rotation thereof within the cap, thereby contributing to the tightness and the general effectiveness of this element.

It will thus be seen that I have provided a simple pressed metal insert nucleus, core or frame for a molded radiator closure or cap which insert effectively anchors and reinforces all parts of the molded body. The corrugated bead 5 performs the double function of anchoring the molded body on its outside and effectively lodging the gasket on its inside.

As above noted, the cap 2 is formed of pressed metal. If the insert were cast it is apparent that beside the threading, further machining operations, both inside and outside would ordinarily be required, particularly to form the bead construction. In general where an insert for the purpose described is made of cast metal and regardless of the specific structural details thereof several machining operations would ordinarily be required, and for the same mechanical strength the cast insert would be materially heavier and bulkier.

It will thus be seen that there is herein described apparatus in which the several features of this invention are embodied, and which apparatus in its action attains the various objects of the invention and is well

suited to meet the requirements of practical use.

As many changes could be made in the above construction and many apparently widely different embodiments of this invention could be made without departing from the scope thereof, it is intended that all matter contained in the above description or shown in the accompanying drawings shall be interpreted as illustrative and not in a limiting sense.

Having thus described my invention what I claim as new and desire to secure by Letters Patent is:

1. A radiator cap insert comprising a pressed metal cap having a base and a flange, a bead adjacent said base pressed outwardly and having a plurality of indentations, whereby both the outer and the inner surfaces of said bead have irregularities, the former for anchoring thereon a moldable cap body against rotation and the latter for similarly anchoring a gasket.

2. A metallic insert, frame or core for a radiator closure, said frame comprising a cap having a countersunk base portion and a flange, a bead connecting said latter elements to each other, said bead being provided with a plurality of indentations on each vertical wall thereof, and the countersunk base portion having a multiplicity of small indentations throughout its upper surface, the indentations on the outer walls for anchoring thereon a moldable cap body and the indentations on the inner wall for anchoring a gasket.

3. A pressed metal insert for a radiator closure, comprising a cap having a base, a threaded flange, and a bead connecting said base and said flange, said flange having a ledge below said bead, said bead extending to both sides of the plane of said base, whereby a portion of said bead constitutes an upstanding ridge encircling said base, said bead having equidistant V-shaped indentations on each of its inner and outer vertical walls, whereby said bead is corrugated both externally and internally, the external corrugations for anchoring a moldable cap body thereto and the internal corrugations for similarly anchoring a gasket.

In witness whereof I have hereunto set my hand at Bridgeport county of Fairfield, State of Connecticut, this 12 day of December 1919.

ARTHUR C. GAYNOR.