Oct. 8, 1929. H. SCHLAICH 1,730,691

RADIATOR CAP

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Fig. 1.

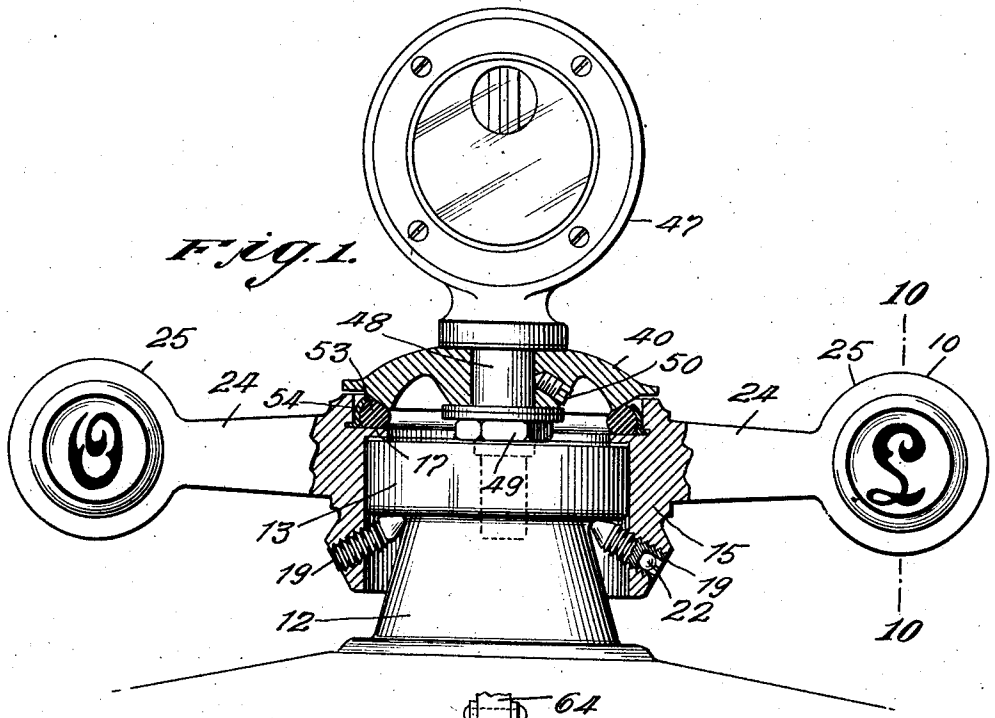
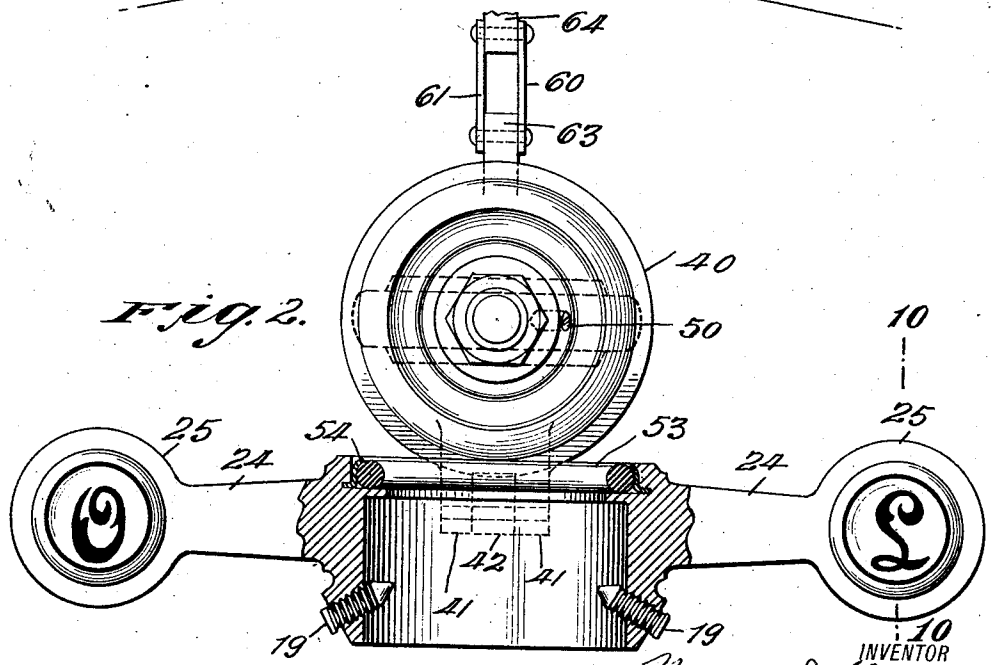


Fig. 2.



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RADIATOR CAP

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Fig. 3.

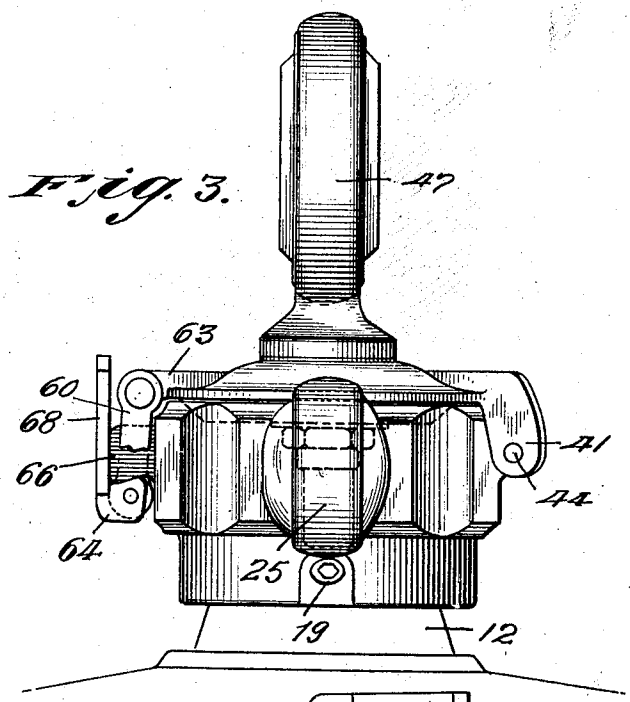
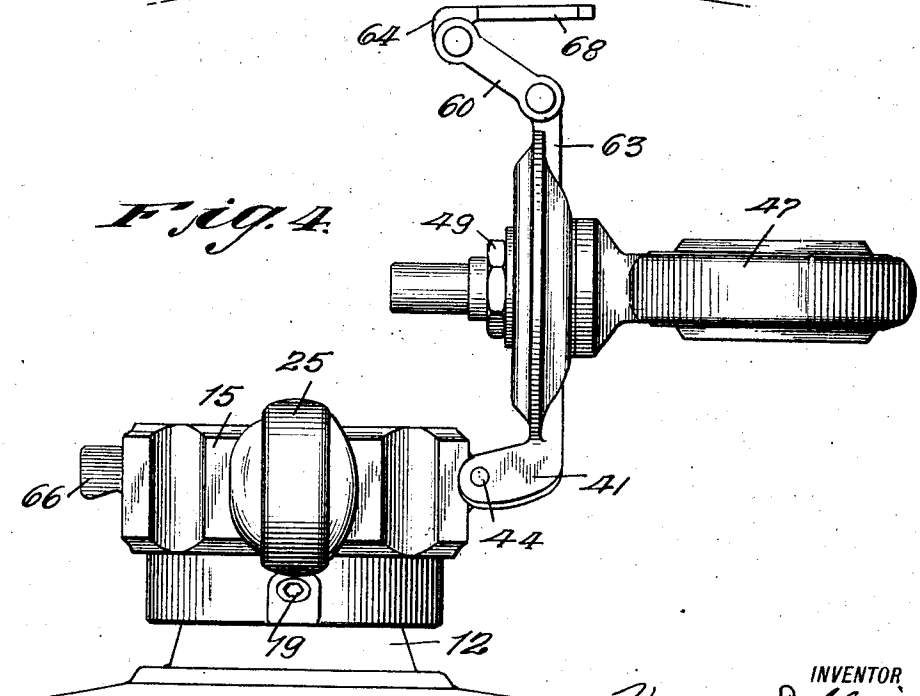


Fig. 4.



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Oct. 8, 1929. H. SCHLAICH 1,730,691

RADIATOR CAP

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Fig. 11.

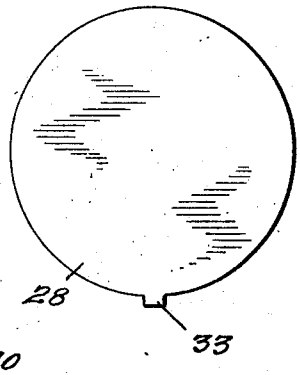


Fig. 5.

Fig. 10.

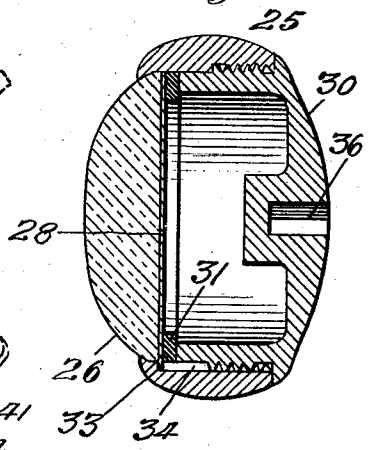
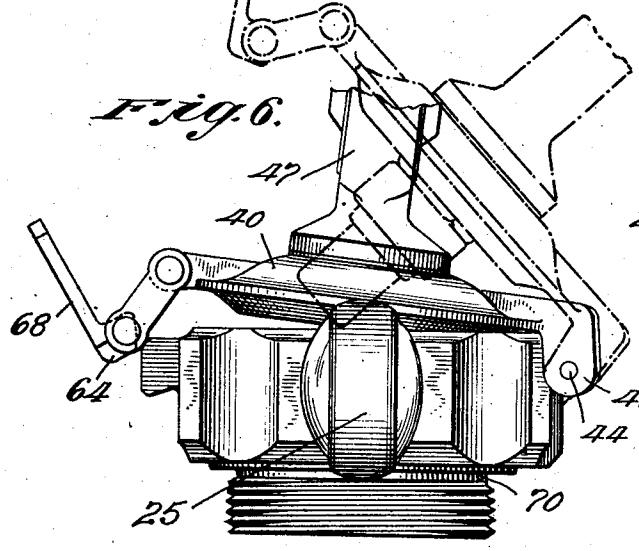


Fig. 6.



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RADIATOR CAP

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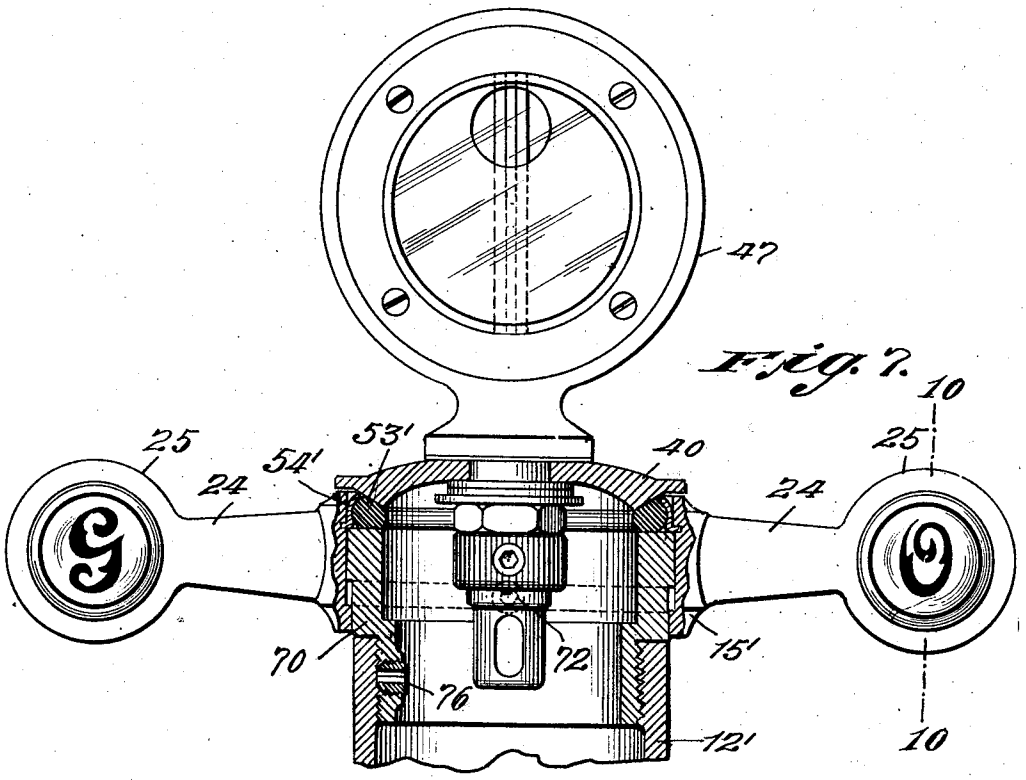


Fig. 7.

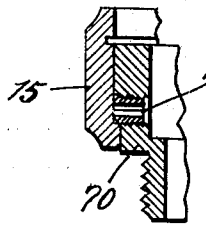


Fig. 8.

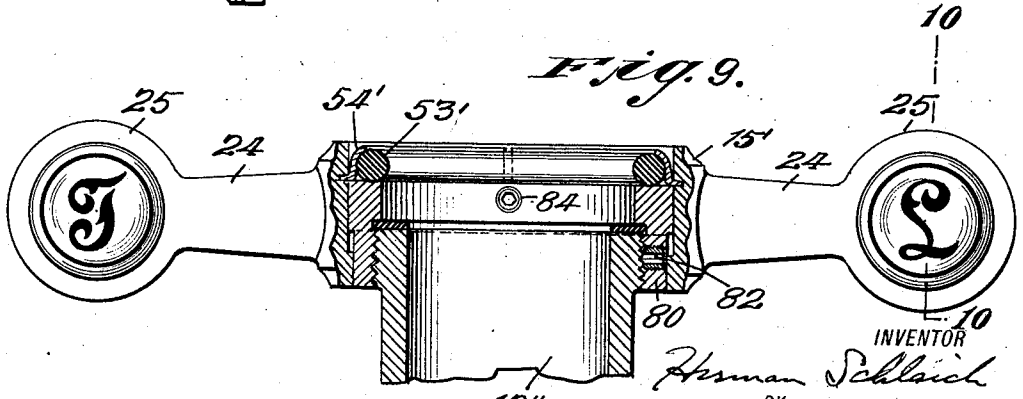


Fig. 9.

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Patented Oct. 8, 1929 1,730,691

UNITED STATES PATENT OFFICE

HERMAN SCHLAICH, OF LONG ISLAND CITY, NEW YORK, ASSIGNOR, BY MESNE ASSIGNMENTS, TO THE KINGSLEY-MILLER COMPANY, OF CHICAGO, ILLINOIS, A CORPORATION OF ILLINOIS

RADIATOR CAP

Application filed December 20, 1922. Serial No. 607,937.

This invention relates to caps for the filling necks of the radiators of automobiles or other vehicles propelled by a water cooled internal combustion engine.

The general object of the invention is to provide a new and improved form of cap, adapted to be applied to radiator necks of standard construction, which will be pleasing in appearance and efficient as a closure; and preferably one that will provide for the carrying of insignia and for the support of a temperature indicating instrument of a well known type.

The invention will be understood from the following description, taken in connection with the accompanying drawings in which Figure 1 is an elevation, partly in section, showing a preferred form of the invention applied to a radiator neck; Figure 2 is an elevation, partly in section, of the device shown in Figure 1 with the closure partly open; Figure 3 is a side elevation of the device shown in Figure 1; Figure 4 is also a side elevation of the device shown in Figure 1 with the closure end in its partially open position; Figures 5 and 6 are side elevations of a modified form of the invention adapted to be used in connection with an internally threaded radiator neck; Figure 7 is a front elevation, partly in section, of the device shown in Figures 5 and 6; Figure 8 is a fragmentary sectional elevation of a portion of the device shown in Figures 5, 6 and 7; Figure 9 is an elevation, partly in section, of a form of the invention adapted to be used in connection with an externally threaded radiator neck; Figure 10 is a sectional elevation on the lines 10—10 of Figures 1, 2, 7 and 9 showing a preferred construction of the portions of the device adapted to carry the insignia; and Figure 11 is an elevation of one of the insignia carrying discs.

Referring to the drawings, and particularly to Figures 1 to 4, the radiator cap therein illustrated is shown as attached to a radiator neck 12 of a well known form. This radiator neck is constructed so as to converge from its base towards its upper end which is flanged as indicated at 13, a shoulder thus being formed beneath said flanged portion of the neck. The body portion 15 of the cap, which may be of the form shown which gives it a pleasing appearance, has an opening therein having a diameter slightly larger than the diameter of the flanged portion 13 of the neck; and said body portion is preferably provided with a shouldered portion 17 adapted to engage the top of the radiator neck, whereby said body member is supported. In order to hold said body member against upward movement, it is preferably provided with an adjustable means such as screws 19 threaded in inclined holes in the lower part of said body member as shown. The screws 19 are preferably pointed and adapted to engage the bottom of the shouldered portion 13 of the radiator neck and thus hold the body portion 15 against removal. The screws 19 are preferably provided with polygonal sockets at their outer ends adapted to receive a special wrench, and capable of being plugged by the insertion of a lead shot 22 after the screws have been set at their holding positions. Unauthorized loosening of the screws 19 and consequent removal of the radiator cap is thus made difficult.

Extending preferably in opposite directions from the body member 15, are arms 24 having enlarged ends 25 each provided with an opening therethru. As is most clearly shown in Figure 10, these openings are adapted at what may be called their front ends to receive a crystal 26, behind which may be inserted a disc 28 upon which may be printed or embossed any suitable insignia, as one of the initials of the owner's name. The other ends of the openings thru the enlarged ends 25 of the arms 24 are closed by threaded plugs 30 which may be of the form shown and are adapted when screwed in place to engage, thru the medium of a yielding washer 31, the insignia disc 28, thereby forcing the latter and the crystal 26 to firm seat, as will be obvious from Figure 10. In order to prevent the insignia disc 28 from turning, it may be provided with a projecting lug 33 adapted to enter a slot 34 extending longitudinally of the opening thru the enlarged end 25 of the arm 24. In order to permit the threaded plugs 30 to be readily screwed in and out,

they may be provided with a socket 36 adapted to receive a wrench of the same configuration. With this construction, it will be evident that the insignia in the outer ends of the arms 24 may be changed as may be desired by removing the plugs 30 and inserting different insignia discs 28.

The body member 15 serves as a support for a closure member 40 which is preferably hinged to the body member. The hinged construction shown comprises perforated lugs 41 extending outwardly and downwardly from one edge of the closure member 40 and adapted to lie on each side of a perforated lug 42 projecting from the body member 15, a pin 44 being passed thru the lugs 41 and 42 and headed over to prevent its removal. As shown, the closure member 40 is perforated for the reception of a temperature indicating instrument 47 of well known form. The stem 48 of the instrument passes thru the hole in the closure member 40 and is secured therein by means of a nut 49 threaded on said stem in a manner obvious from the drawings. In order to positively prevent angular movement of the temperature indicating instrument 47 after it has been installed on the closure member 40, the latter may be provided with a pointed set screw 50 adapted to engage the stem 48 of the temperature indicating instrument. This set screw may serve also to interfere with unauthorized removal of the instrument from the radiator cap. In order to make a water and steam tight joint between the closure member 40 and the body member 15 of the radiator cap, said body member is preferably provided with a gasket which is shown as consisting of a rubber ring 53 which rests on the top of the shouldered portion 17 of the body member. In order to help to retain the ring 53 in place, the body member 15 is preferably provided with a sheet metal ring 54 of the form shown which may be split and thus adapted to be readily inserted in an annular slot in said body member 15, as clearly shown in Figures 1 and 2. It will be noted that the bottom portion of the closure member 40, which co-operates with the rubber ring 53, is inclined and adapted to put that ring under compression when the closure member is drawn downwardly. The closure member 40 is provided with latching means adapted to hold said closure member in its closed position; and, in all of the devices herein shown, this latching means comprises links 60 and 61 hingedly connected to a lug 63 extending from the edge of the closure member 40, and a locking cam 64 of the form shown which is pivotally mounted in the outer ends of the links 60 and 61. The locking cam is adapted to co-operate with a lug 66 extending radially from the body member 15 and preferably integral therewith; and is provided with an enlarged end 68 which serves as a thumb piece by which the cam may be moved to and from its locking position. In Figure 3, the cam is shown in its locking position; and in Figure 4 it is shown in its unlocked position, from which its mode of operation will be easily understood.

The embodiments of the invention shown in Figures 5, 6, 7 and 8 will now be described. In these forms of the invention, the external appearance of the body member, after it has been secured to a radiator neck, may be substantially the same as the external appearance of the construction shown in Figures 1 to 4, omitting the lower portion carrying the screws 19. The closure member, the latch construction and the outwardly extending arms carrying the insignia may also be of the same form as those parts in the construction of Figures 1 to 4, and are so illustrated in Figures 5 to 9 to which the same reference characters have been applied.

In the devices of Figures 5 to 9, the body member 15′ may be bored out to substantially the form shown, thereby adapting said body member to receive a bushing or insert adapted to make threaded engagement with an internally or externally threaded radiator neck. The insert 70, shown in Figures 5, 6 and 7, as will be obvious from the drawing, is provided with a downwardly extending externally threaded portion adapted to co-operate with an internally threaded radiator neck 12′. The body portion 15′ of the cap may be locked to the insert temporarily by means of a set screw 72, to enable the arms 24 and the cap body 15′ to be used in screwing the insert into the radiator neck. The set screw 72 is preferably provided with a wrench socket like the wrench sockets in the screws 19, and is located in a threaded hole in the insert 70 and is adapted to be forced against the interior surface of the body portion 15′ of the cap. After the insert 70 has been screwed down tightly, the set screw 72 is turned to release the cap body 15′, to prevent unscrewing of the insert by the use of the arms 24 or the cap body. Downward movement of the body portion 15′ with reference to the insert 70 is prevented by the sheet metal ring 54′ one edge of which is inserted in a slot in the body member 15′, said ring 54′ also serving to help retain the rubber packing ring 53′ in its proper position. In order to prevent unauthorized removal of the cap from a radiator neck, the lower portion of the insert 70 may be provided with a set screw 76 which may be forced into engagement with the internal threads on the radiator neck after the insert has been screwed into the neck as far as possible. The set screw 76 is also preferably provided with the same shape wrench socket as the set screws hereinbefore mentioned, thereby permitting it to be manipulated by the same wrench, and allowing the

socket to be plugged by the same size shot as the shot 22 hereinbefore mentioned. The insert and closure are normally held against relative rotation by reason of their frictional engagement with the packing ring 53′, but the grip of this ring is insufficient to overcome the set screw 76 and force the insert to turn in case the cap body is forced to turn by turning the arms 24.

Referring to Figure 9, the body member 15′ therein illustrated is shown as provided with an insert 80, which is internally threaded and adapted to co-operate with an externally threaded radiator neck 12″. A set screw 84 may be used for temporarily locking the insert 80 to the cap body 15′, for screwing the insert onto the radiator neck by means of the arms 24 and the cap body. This screw 84, like the screw 72 of Figures 6, 7 and 8 is turned to release the cap body after the insert has been screwed into place. In this construction, after the insert 80 has been screwed tightly on to the radiator neck, it is preferably secured from unauthorized removal by a set screw 82, of the type hereinbefore mentioned, which passes through the lower portion of the insert 80. In order to permit the wrench socket in the screw 82 to be reached, the sheet metal ring 54′ and the packing ring 53′ are removed during installation thereby allowing the body member 15′ to be slid downwardly over the insert 80, thereby exposing the wrench socket in the set screw 82. After the set screw 82 has been screwed to its holding position, the body member 15′ is raised again covering the set screw and concealing it, the ring 54′ and packing ring 53′ are reinserted, the body member 15′ is angularly adjusted to its proper position, and then the closure is closed and latched. In Figure 9, the closure member is not shown, but it is to be understood that it may be of the same form as the closure member illustrated in the other figures.

While I have, in this specification and the drawings which accompany it, shown certain constructions in which my invention may be embodied, it is to be understood that these are merely illustrative and obviously may be modified in many respects without departing from the spirit of the invention as defined in the appended claims.

What I claim is:

1. A radiator cap comprising a body portion having an opening therethrough and adapted to be secured to a radiator neck, said body member in the opening therein being provided with an annular slot, a closure member hingedly connected to said body member and adapted to close the opening through the latter, latching means for securing said closure member in its closed position, and a gasket between said closure member and said body member comprising a ring of yielding material arranged with the opening through the body member, and a sheet metal ring inserted in the slot in said body member and partially surrounding the surface of said ring of yielding material.

2. The combination with an automobile radiator neck of a cap comprising a closure hinged to swing between positions to open and close the filling opening of the neck, an indicating instrument carried by said closure having a stem projecting through the closure, a set screw threaded through the closure and engaging the instrument stem to prevent the instrument from turning in the closure, and means to secure the cap against rotation, whereby the instrument is kept facing the operator.

In testimony whereof I have affixed my signature to this specification.

HERMAN SCHLAICH.