Oct. 9, 1928. 1,687,482

H. S. GILLETTE

RACK ACTION RADIATOR CAP

Filed Sept. 7, 1926

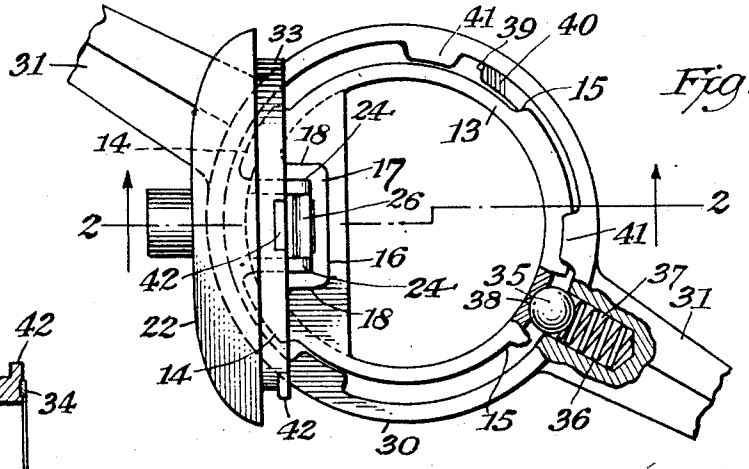


Fig. 1.

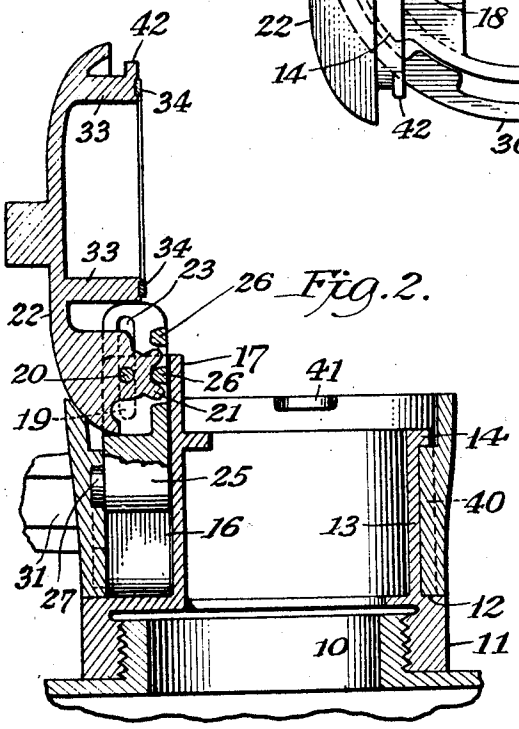


Fig. 2.

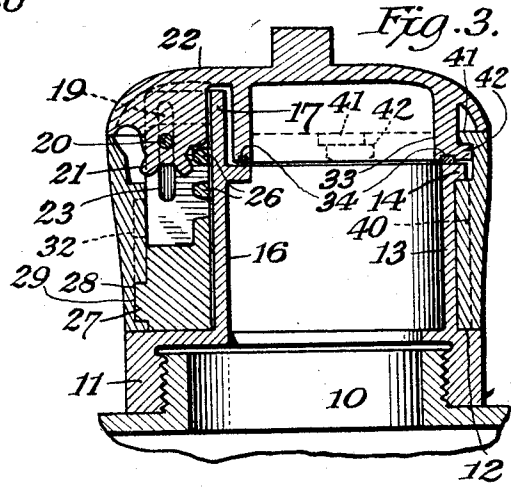


Fig. 3.

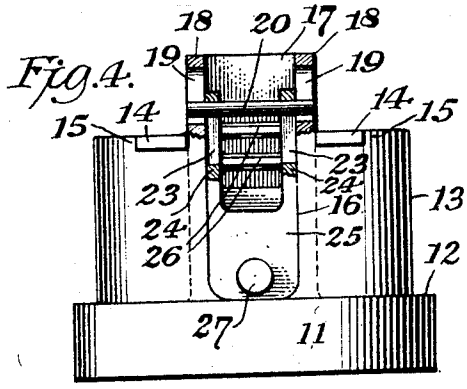


Fig. 4.

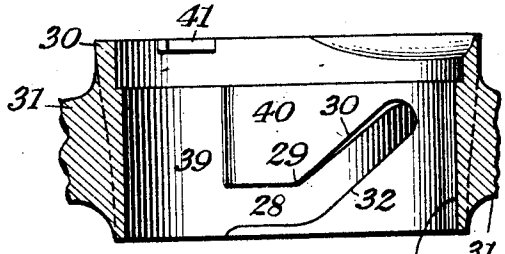


Fig. 5.

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UNITED STATES PATENT OFFICE.

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RACK-ACTION RADIATOR CAP.

Application filed September 7, 1926. Serial No. 134,060.

This invention relates to radiator caps for automobiles, the object of the same being to obviate some of the objections which are present in the prevailing types of devices used for the purpose.

Another object of the invention is to provide improved means whereby the cover will (when a part of the device is turned) be raised or swung upwardly on its pivot from a closed, locked position, and when said part is turned back, said cover is closed down and locked, these operations being accomplished by a single partial turning movement of the said part.

Important features of the improved construction may be found in the employment of a vertically movable gear block rack guided in a fixed part of the device and controlling the swinging movements of the cover through a segmental gear formed unitary with the cover and meshing with gear bars on said block.

Means are also provided for locking the cover in its closed position consisting of lugs on the stationary and movable parts of the device.

Another feature is formed in a yielding lock to hold the parts with the cover in the open position, when filling the radiator and to prevent vibrations when cover is closed.

In order that the invention may be clearly understood and readily carried into effect the same will now be described more fully with reference to the accompanying drawings illustrating a preferred embodiment thereof, in which:—

Fig. 1 is a plan view of the improved radiator cap for the automobiles the parts being shown with the cover in the open position and partly broken away to disclose a yielding lock for holding the parts yieldingly locked when open or closed.

Fig. 2 is a vertical cross section taken on the line 2—2 of Fig. 1.

Fig. 3 is a view similar to Fig. 2 but with the cover in the closed and locked position.

Fig. 4 is a detail side elevation, partly in section of the fixed base ring of the device showing the gear block in operating position.

Fig. 5 is a detail sectional elevation of the turnable lock-sleeve showing the gear block operating cam slot form in the inner wall thereof.

Referring to the drawings, 10 designates the threaded neck portion of an automobile radiator, on which a base ring 11, is screwed. It has an exterior annular ledge 12, and a tubular portion 13, provided with flanges 14, at the top, which is cut away to form opposite recesses 15.

The tubular portion 13, is formed with a guide box 16, having vertically extending back and side walls 17, and 18 respectively. The side walls are slotted at 19, to receive a cross pin 20, which extends through a segmental gear 21, formed on a cover 22. The pin 20 also passes through slots 23, provided in side plates 24, of a gear block 25, mounted and operating in the guide box 16. Extending between the side plates 24, of the gear block 25, are gear-bars 26, adapted to mesh with the segmental gear 21, of the cover.

The gear block also carries a pin 27, which normally projects into a horizontal straight portion 28, of the cam slot 29, formed in the inner wall of a turnable lock-ring 30, operated by suitable handles 31. When the cover is to be opened the handles are operated to turn the lock-ring which rests on the ledge 12, of the fixed base ring 11. This movement causes the inclined portion 32 of the slot 29, to engage the pin 27, of the gear block, and force it upward from the position shown in Fig. 3. This upward movement first raises the cover bodily from its seat on the ring 30, and when the cross pin 20, reaches the top of the slots 19, in the extended side walls of the guide box, the combined upward movement of the gear block will cause the gear bars 26, to act on the segmental gear, and turn the cover to the open position, as in Fig. 2, of the drawing.

The cover is formed with a downwardly directed flange 33, provided with packing 24, to form a sealed joint with the tubular portion 13, of the base ring 11. The parts may be held with the cover open by a ball 35, backed by a spring 36, housed in above 37, in one of the handles 31, said ball engaging a socket 38, formed in the outer wall of the fixed tubular member 13.

To assemble the base ring with the lock ring it is necessary to register the portions of the flange 14, with opposite recesses 39, formed in the wall of the said lock ring, or register the thick portions 40, of the wall of the lock ring with the recesses 15, in the flanges 14, when the base ring member may be inserted upwardly into the lock-ring and given a partial turn to interlock the parts.

The lock-ring and the cover each have lugs 41, and 42 respectively which are arranged to interlock when the cover is closed.

What I claim as new, is:—

1. A radiator cap comprising a fixed base member, a member movable thereon, a cover carried in hinged relation by the fixed member said cover having a segmental gear, a gear block adapted to engage the segmental gear and having a projecting pin, and means engaging said pin when the movable part is turned for raising the gear block to swing the cover to the open position, and means for locking the parts in such position.

2. A radiator cap comprising a fixed member and a member turnable thereon, a cover hinged to the fixed member, a guide box formed in the fixed member having extended slotted walls, a gear block having slotted side plates and movable in said box, said block having gear bars and a projecting pin, said cover having a segmental gear, a pin connecting the cover gear block and guide box, said movable member having a cam slot to engage the pin on the gear block and raise the same to open said cover.

3. In a radiator cap of claim 2, means for locking the parts when the cover is open.

4. In a radiator cap of claim 2, said cover being hinged on a single pin passing through a portion of the cover and playing in said slots in the guide box walls and gear block respectively and said hinge being entirely concealed when said cover is closed.

5. A tubular device of the character described, including a support, a gear rack extending along the support, a member pivotally mounted about an axis at right angles to the rack, said member having a gear, and cam means transverse to the support to move the rack to actuate the gear for causing a tilting movement of said member.

6. A device of the character described, including a tubular support, a member movable to close the same, a gear rack in said support and extending therealong, a segmented gear coacting with said member, and cam means actuated from outside the support for moving said rack to operate the gear thereby moving said member as aforesaid.

7. A device of the character described, including a support, a movable gear rack mounted thereon, a pivoted member, guide means coacting with the pivot of said member to permit predetermined movement of the pivot and a gear coacting with said member, said rack having stop means to engage said member and limit the movement of the pivot with respect to the stop means, said rack engaging said gear in the last mentioned position to pivotally move said member.

8. A device as set forth in claim 7, wherein said support is of tubular construction, and includes an interior box having the guide means, said rack being movable in said box.

9. A device as set forth in claim 7, wherein said support includes a box having the guide means, said rack being in said box, said member having a pin engaging both the guide and the stop means.

Signed at New York, in the county of New York, and State of New York, this 7th day of August, A. D. 1926.

HARRY STIMPSON GILLETTE.