

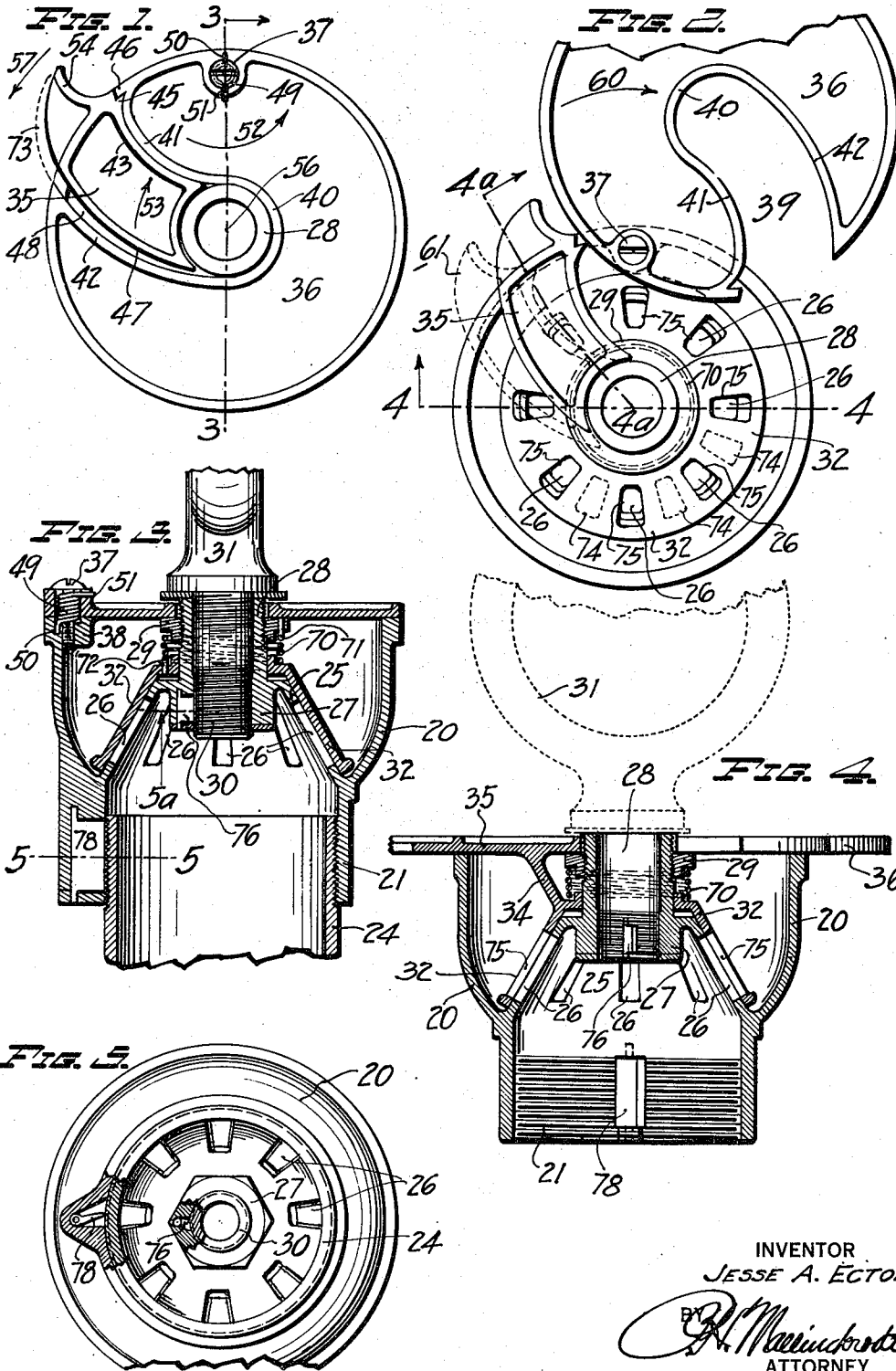
Jan. 1, 1924

1,479,031

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INSTANTANEOUSLY ACTING RADIATOR CAP WITH MOUNTING FOR TEMPERATURE INDICATORS

Filed June 14, 1921



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## INSTANTANEOUSLY-ACTING RADIATOR CAP WITH MOUNTING FOR TEMPERATURE INDICATORS.

Application filed June 14, 1921. Serial No. 477,537.

*To all whom it may concern:*

Be it known that I, JESSE A. ECTON, a citizen of the United States, and a resident of the city of Murray, the county of Salt Lake, and State of Utah, have invented certain new and useful Instantaneously-Acting Radiator Caps with Mountings for Temperature Indicators, of which the following, together with the accompanying drawing, forms a full, clear, and exact specification, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to an instantaneously-acting radiator cap with a mounting for temperature indicators and the like, and its principal objects are:

First. To lock the temperature-indicator to the radiator cap and the radiator cap to the neck of an automobile radiator, in such a manner as will prevent the separate parts from being stolen.

Second. To allow the radiator cap to be instantly opened and closed, thereby saving time and annoyance.

Third. To afford a wide-mouthed funnel for filling the radiator, and at the same time to provide a centrally located mounting for a temperature indicator or other device.

Fourth. To provide a radiator cap which shall be simple and durable in construction, and attractive in appearance.

Fifth. To be adaptable for fastening to any structure, such as tanks or closed vessels of any description, into which it may be desired to pour a liquid.

In attaining the objects outlined above, I provide a collar or sleeve portion which may be threaded and adapted to fit the neck of an automobile radiator. Extending upwardly from this sleeve is a central body portion, preferably in the form of a truncated conical shell, through the walls of which may be formed a series of ports. Flaring outwardly from the said sleeve is an upwardly extending bowl portion, which may surround the conical shell and be concentric therewith. On the upper rim of the bowl portion, is pivoted an outwardly swinging cover, which may move in a plane approximately perpendicular to the axis of the bowl. Concentrically mounted on the upper surface of the said truncated conical portion is a second hollow truncated cone which fits

over, and whose inner surface is in close contact with, the outer surface of the first cone. The second cone has a series of ports adapted to register with the first mentioned ports, and has also a limited rotation thereover, so that the ports of the second cone may be brought into registry with the ports of the first cone when the cover is opened, and out of registry when the cover is closed.

At the top of the second cone is an outwardly extending arm curved to the arc of a circle struck from the cover pivot as a center, and adapted to operate in a similarly curved slot in the cover. The cover and the curved arm may be arranged to co-act in such a manner that by moving the arm slightly, the cover, which normally may be under the tension of a spring, will fly open. The curved arm and the cover are provided with interlocking catch portions, so that when the cover is pushed back to the closed position, it will be engaged by the curved arm until again released by the user. In the center of the first or inner cone is a bored hub, which may be threaded to engage the shank of an ordinary temperature-indicator. Between the threads of the radiator neck and the threads of the collar, and between the threads of the hub and the threads of the temperature-indicator shank, are thread-locking members, which are adapted to allow the parts to be screwed together, but not to be unscrewed, thereby forming a permanent fastening between the parts named.

The features of this invention, upon which the protection of Letters Patent is desired, are collectively grouped in the claims by which this specification is concluded.

In the drawings,

Fig. 1 represents a plan of this device without the temperature indicator.

Fig. 2, a similar plan showing the cover in the open position and exposing a view of the interior.

Fig. 3, a vertical section on line 3—3, Fig. 1.

Fig. 4, a vertical section taken partly on line 4—4 and partly on line 4<sup>a</sup>—4<sup>a</sup>, Fig. 2. In this view, the portion in section on 4<sup>a</sup>—4<sup>a</sup> is supposed to have been rotated into the vertical projecting plane.

Fig. 5, a bottom plan, partly in section on line 5—5 and on line 5<sup>a</sup>, in Fig. 3.

Referring to the drawing, 20 indicates a

bowl portion having at its lower end the downwardly extending threaded sleeve 21, which is adapted to engage the threaded radiator neck 24. Extending inwardly and upwardly from the lower part of the bowl 20 is a hollow truncated cone 25, in the wall of which are the ports 26. In the top of the cone 25 is the integral hub 27, having the upwardly extending sleeve 28, the upper outer portion of which is threaded to receive the collar 29. The hub 27 may be bored and threaded to receive the shank 30 of a temperature indicator 31. A portion of the temperature indicator is represented by full lines in Fig. 3, and by the dotted lines in Fig. 4. It will be noted in Fig. 4, that the shank of the temperature indicator is omitted, which leaves the view free to illustrate the inside of the hub 27, for the purpose of showing the thread lock.

A second hollow truncated cone 32, having its inner surface ground to a close contact with the outer surface of the cone 25, is rotatably mounted on the latter. Projecting upwardly from the top of the cone 32, is a web 34, which carries the curved arm 35. The cone 32, the web 34 and the arm 35 may all be integral with each other as shown in Fig. 4.

At 36 is a cover which may be pivoted on a screw 37, the latter being fastened in the boss 38 of the bowl portion 20, so that the cover is adapted to move approximately in a horizontal plane. In the middle of the cover 36 is the curved slot 39, the inner end 40 of the slot being adapted to fit around the upper portion of the sleeve 28. The boundaries 41 and 42 of the slot 39, are arcs of circles struck from the center of the pivot 37, and when the cover is in the closed position as shown in Fig. 1, the curved arm 35 will have its portion 43 in contact with the portion 41 of the cover 36. In this position also, it will be noted that the hook 45 of the arm 35 is in close engagement with the projection 46 of the cover 36 and these are adapted to co-act in a manner which will presently be described. It will be noted in Fig. 1, that the portion 42 of the cover is not in close contact with the portion 47 of the curved arm 35, but that a wedge-shaped space 48 is left there-between. At 49, is a coiled spring, having the stub end 50 and the stub end 51. The spring is tensioned to act in the direction of the arrow 52 in Fig. 1, and operates to swing the cover 36 around to the open position as shown in Fig. 2.

At 70 is another coiled tension spring, having the stub end 71 (Fig. 3) fastened in the stationary collar 29, and the stub end 72 fastened in the movable cone 32. The spring 70 is designed to move the curved arm 35 with its attached cone 32, in the direction of the arrow 53 (Fig. 1). The tension spring 70 serves a second purpose by exert-

ing a pressure between the stationary collar 29 and the movable cone 32, thereby forcing the cone 32 down to its seat on the first or stationary cone 25.

Normally, when the cover is in the closed position, the cover and the curved arm are each under a spring tension as described, but interlocked with each other as shown in Fig. 1. To open the cover, the user breaks the interlock by grasping the finger lug 54, and pulling the curved arm 35 around the axis 56 in the direction of the arrow 57 (Fig. 1), against the tension of the spring 70, until the hook 45 slips out from under the projection 46, which allows the tension of the spring 49 to come into action and swing the cover to the open position. The edge 47 of the curved arm 35, when brought into the position indicated by dotted line 73 in Fig. 1, coincides with the edge 42 of the cover, and these edges, being in the form of a circular arc struck from the center of the pivot 37, will allow the cover 36 to slide smoothly past. When the cover is open, and the curved arm 35 has been released by the operator, the various ports will be in approximately the position shown in Fig. 2. To accomplish the actions described, the cover must necessarily be pivoted at a point eccentric to the common axis of the valve and the cover.

When it is desired to close the cover, it is pushed around the axis 37 in the direction of the arrow 60 (Fig. 2) by which action the various parts will be necessarily returned to their original places in the initial or interlocked position shown in Fig. 1.

The dotted portions 74 in Fig. 2, represent the positions of the ports 75 of the cone 32 when the cover 36 is closed. These positions are intermediate the ports 26, whereby the solid parts of the two cones mutually cover the ports therein.

In the closed positions of the ports, no steam nor splash can escape from the radiator.

It will be noted that the bowl portion described serves the purpose of a funnel for filling the radiator, and that the ported movable cone forms a valve, which has its seat upon the inner or stationary cone.

The threaded parts are locked to each other by the struts 76 and 78 (Figs. 3 and 4). These struts have each a bearing in one of the threaded members, and are provided with a sharp chisel edge adapted to cut the threads of the other threaded member transversely. When it is attempted to unscrew the parts, the strut will form an effective barrier to the separation thereof.

It may be mentioned that the curved slot 39 bifurcates the cover 36.

While an embodiment of this invention is herein shown and described, it is to be clearly understood that the general arrange-

ment thereof and the particular design of all the detailed parts may or may not be in the preferred forms, and further that the preferred forms may be varied from time to time, as may be rendered desirable according to the progress that may be made in the practical application of this invention and in the arts in which it may find its most extensive uses, therefore the skilled inquirer is directed to interpret the scope of this invention from the claims in which its spirit is broadly generalized.

Having fully described my invention, what I claim is:

1. In a device of the kind specified, a sleeve portion having an upwardly extending funnel portion and a ported central portion, all in substantial axial alignment with each other, a ported valve portion seated on the said central portion, an operating arm projecting from the said valve portion, and a bifurcated pivoted cover member for the said funnel portion, the said operating arm and the bifurcated cover being adapted to co-act for the purpose specified.

2. In the device specified, the combination with a sleeve portion having an upwardly extending funnel portion, an interiorly disposed sleeve portion adapted to receive a temperature-indicator and a ported portion concentric with the said interior sleeve portion, of a ported valve portion adapted to register with the first-mentioned ported portion, an operating arm projecting from the said valve portion, and a cover portion for the said funnel portion, the said cover being adapted to co-act with the said arm, for the purpose specified.

3. In the device described, a sleeve adapted to have a temperature indicator mounted therein, a portion having ports radially disposed around the said sleeve, a second sleeve projecting downwardly from the said ported portion, a funnel portion extending upwardly from the second sleeve, a bifurcated cover pivotally mounted on the said funnel portion, the bifurcated portion of the said cover being adapted to receive the first mentioned sleeve, an operating arm movably disposed in the said bifurcated portion, and a valve portion forming a part of the said operating arm, the said valve being adapted

to co-operate with the said portion having ports, for the purpose specified.

4. A funnel, a ported seat portion within the same, a ported valve rotatably mounted on the seat, a cover having rotary motion relatively eccentric to the motion of said valve, a bifurcated portion in said cover concentric with the rotary motion thereof, an arm integral with said valve, the arm in the closed position of the cover, being in engagement with said bifurcated portion, means for interlocking the arm and bifurcated portion in the engaged position thereof, and means for breaking the interlock.

5. A structure having a ported seat portion, a ported valve rotatably mounted on the seat, in registering relation thereto, tensionable means for holding the registering position, a cover having rotary motion relatively eccentric to the motion of said valve, a bifurcated portion in said cover concentric with the rotary motion thereof, an arm integral with said valve, the said arm in the closed position of the cover being in engagement with said bifurcated portion, while the valve is in the non-registering position, tensionable means for holding said cover in the open position; means for interlocking the arm with the bifurcated portion in the engaged position, each against the stress of its respective tensionable means; and means for breaking the interlock.

6. A sleeve, a bowl extending therefrom, a truncated conical seat portion having ports, within the bowl, a ported valve conforming to the seat portion and rotatably mounted thereon, a rotatable cover mounted on said bowl eccentrically to said valve, tensionable means for holding the valve in a predetermined position, second tensionable means for holding the cover in a predetermined position, means for mutually interlocking said valve and said cover in a predetermined position different from the first positions, whereby both said tensionable means are stressed, and means for breaking said interlock.

In testimony whereof, I sign my name hereto.

JESSE A. ECTON.