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J. F. BLAND.
RADIATOR CAP.
APPLICATION FILED SEPT. 30, 1921.

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Fig. 1.

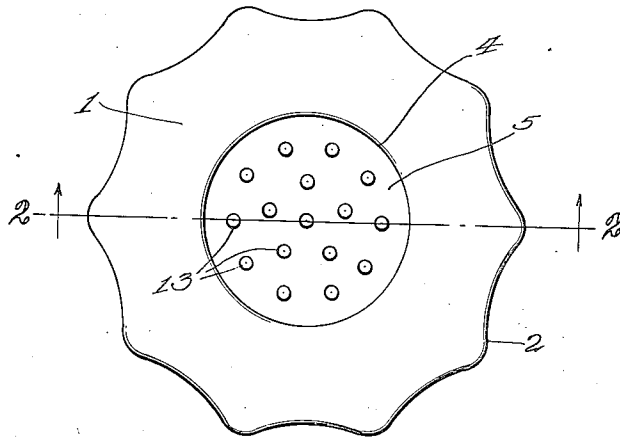


Fig. 2.

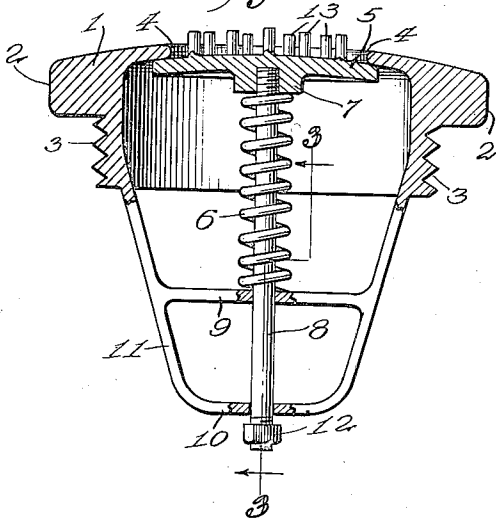
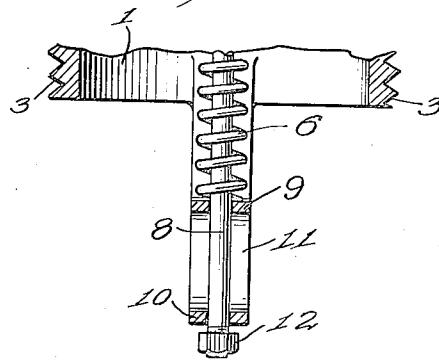


Fig. 3.



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RADIATOR CAP.

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To all whom it may concern:

Be it known that I, JOSEPH FRANKLIN BLAND, a citizen of the United States, residing at Winston-Salem, in the county of Forsyth and State of North Carolina, have invented certain new and useful Improvements in Radiator Caps; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

The present invention relates to improvements in radiator caps and has for an object to provide an improved cap which is not subject to the disadvantages of having to be removed to permit of the filling of the radiator with water, but which admits of the introduction of a hose nozzle through a movable closure plate which will automatically reseal itself after the withdrawal of the nozzle and keep the opening to the filling neck of the radiator effectively closed.

It is another object of the invention to provide an improved radiator cap which admits of being removably connected with the filling neck of a radiator as by the usual screw threading or otherwise, but which is intended thereafter to become a permanent fixture on the radiator neck, with the exception of its removal at such times as may be necessary in dis-assembling the radiator; such cap having an opening therein closed by a spring-pressed plate which is openable inwardly of the cap and held seated by spring pressure.

A further object of the invention resides in providing an improved radiator cap forming with the closure plate a unitary assembly in which the parts are few, simple and the device as a whole of economical manufacture.

With the foregoing and other objects in view, the invention will be more fully described hereinafter, and will be more particularly pointed out in the claim appended hereto.

In the drawings, wherein like symbols refer to like and corresponding parts throughout the several views,

Fig. 1 is a top plan view of an improved radiator cap constructed according to the present invention;

Fig. 2 is a sectional view taken on the line 2—2 in Fig. 1; and,

Fig. 3 is a fragmentary sectional view taken on the line 3—3 in Fig. 2.

Referring more particularly to the drawings, wherein only a single embodiment of the invention is disclosed, 1 designates generally an automobile radiator cap having a scalloped flange 2 with grooved indentations to fit the fingers of the hand when in the act of screwing and unscrewing the cap of the neck of the radiator when filling the radiator. The shank is provided in this instance with external screw threads 3 adapted to fit the internal threads which are provided on the filling necks of the radiators used on Ford automobiles. Obviously a different disposition of the threads may be made to agree with the filling necks on other types and makes of cars.

In accordance with the invention a central opening 4 is made in the top portion of the cap, this opening being normally closed by a valve or closure plate 5 having its marginal edges seated beneath the under wall of the opening 4 where a tight joint is made between these parts by the continuous pressure exerted on the plate 5 by a coil spring 6 bearing at its upper end beneath a central box 7 projecting downwardly from the plate.

The upper end of a stem 8 is screw threaded into a socket provided in the boss 7, the stem 8 extending down axially through the coil spring 6 and acting as a guide for the same and for the plate. The coil spring 6 at its lower end bears against a bar 9 through which the stem 8 is slidable. Below the bar 9 the stem is continued downwardly and passes through the connecting yoke 10 of a stirrup or spider 11 which has its upper ends formed with or attached to the lower shank portion of the cap 1 and which in this instance are shown to merge with the shank portion at diametrically opposite points.

The stem 8 slides freely through perforations made in the bar 9 and in the yoke portion 10, while the lower end of the coil spring 6 is seated fixedly and is thus caused to be put under a compression with the closure plate 5 which is made to descend from its closed position against the wall of the opening 4. The coil spring 6 will automatically return the closure plate 5 to the closed position after the pressure which depresses the plate is removed.

A nut 12 is threaded upon the lower projecting end of the stem 8 and acts as a stop to limit the upward movement of the stem and also to avoid a dis-assembly of the

5 parts.

In assembling the parts, the closure plate 5 is first inserted between the opposite members of the stirrup 11 above the bar 9 and is fitted up into place, after which the coil 10 spring 6 is inserted through the same opening and put in a condition of compression and made to abut respectively against the boss 7 and the bar 9, the stem 8 being then inserted through the openings in the yoke 15 piece 10 and bar 9 and through the center of the spring 6, such stem being threaded then into the socket in the boss 7.

The plate 5 on its upper surface is preferably a section of a sphere or rounded to 20 agree with the general curvature of the top of the cap 1 and carries a number of up-standing pins 13 situated in any desired relative configuration, but being with advantage located in the positions shown in 25 Fig. 1 in order to impart an ornamental aspect to the radiator, and in order to secure the results intended, which is to receive the nozzle of a hose and permit of the depressing of the closure plate 5 away from 30 its seat by such nozzle of the hose without allowing the mouth of the hose nozzle to be closed against the upper surface of the plate 5, and which further prevents the mouth of the nozzle from coming too close to the 35 valve plate which would cause a deflection of the water stream over the top of the radiator cap and possibly upon the person of the user.

The idea is to turn on the spigot or faucet 40 and while the water is running from the nozzle directly upon the pins 13, causing the nozzle to descend upon the plate 5 in opposition to the coil spring 6. The water will then run between the pins 13 and be deflected by the curved upper surface of the 45 plate 5 against the interior cylindrical wall of the cap 1, the water finally running down into the filling neck and into the radiator space. When the hose is removed after filling 50 sufficiently, the coil spring 6 will come into play raising the plate 5 into its closed position shown in Fig. 2.

It will thus be seen that the invention does away entirely with the necessity of placing the hands upon the radiator cap 55 which becomes hot with usage of the automobile and which in such condition is extremely disagreeable and painful to handle. It is generally at a time when the engine is hottest that the radiator is required to be 60 replenished and motorists usually resort to the use of a handkerchief or rag with which to aid in the unscrewing of the cap. With this invention, the hand need not touch the cap and if a hose is not available, 65 any implement such as a screw driver or pliers, usually carried in the tool kits, may be used to force the plate 5 downwardly while water is poured from a bucket through the opening 4.

While the invention is referred to as a cap for radiators, it will of course be understood that it may be used in other connections and for many further purposes, one 75 such purpose being particularly as a cap for the gasoline tanks on automobiles, as in this instance the nozzle of the filling hose could be pressed upon the pins to open the cover plate in a similar manner to that already 80 described.

It is obvious that various changes and modifications may be made in the details of construction and design of the above specifically described embodiment of this invention without departing from the spirit 85 thereof, such changes and modifications being restricted only by the scope of the following claim:

What is claimed is:

An improved cap comprising a cap body 90 adapted to be secured upon the filling neck of a radiator and having an opening therein, a closure plate within the cap body adapted to seat beneath said opening and having a curved upper surface with a plurality of 95 pins projecting upwardly therefrom, a stem removably connected to the plate and slidable up and down therewith, guide means for the stem, and a coil spring surrounding the stem having its lower end fixed and its up- 100 per end bearing beneath the plate for normally and yieldingly holding said plate closed, substantially as described.

JOSEPH FRANKLIN BLAND.