T. HILL.

RADIATOR CAP LOCK.

APPLICATION FILED MAY 5, 1920.

1,358,549. **Patented Nov. 9, 1920.**

Fig. 1.

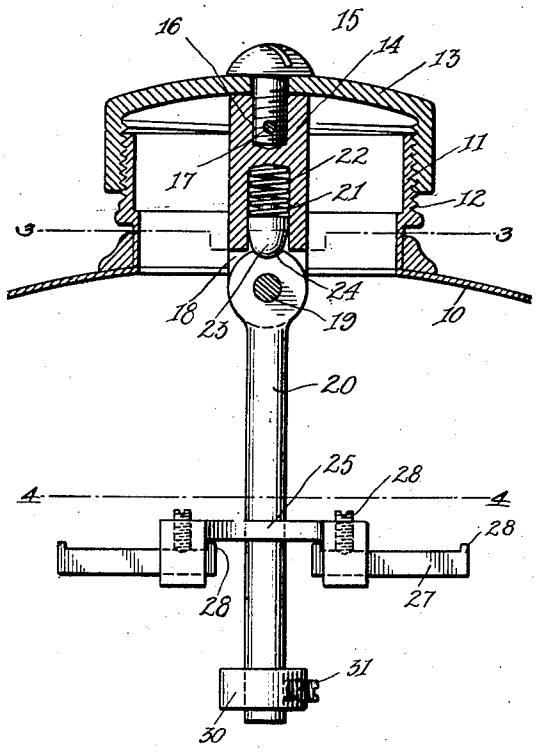


Fig. 3.

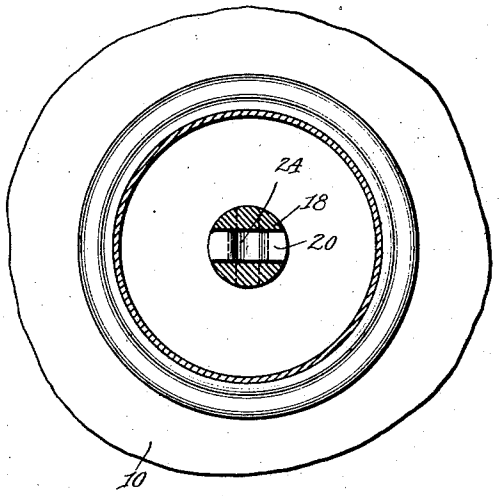


Fig. 2

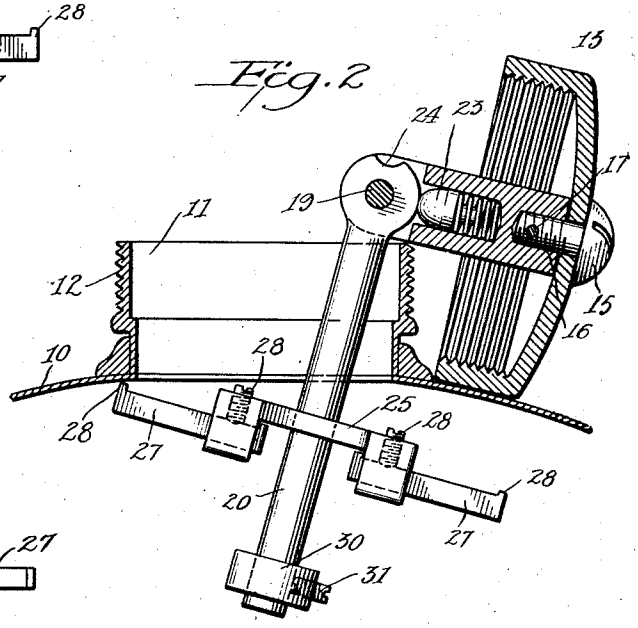


Fig. 4.

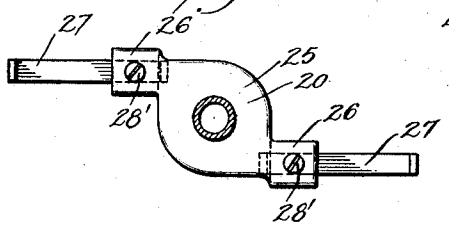
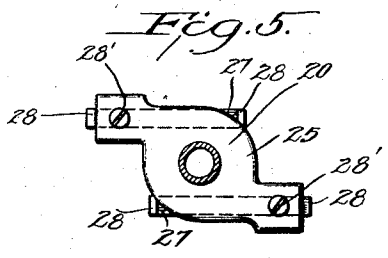


Fig. 5.



WITNESSES

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RADIATOR-CAP LOCK.

1,358,549. Specification of Letters Patent. Patented Nov. 9, 1920.

Application filed May 5, 1920. Serial No. 379,103.

To all whom it may concern:

Be it known that I, THOMAS HILL, a citizen of the United States, and a resident of the city of New York, borough of Manhattan, in the county and State of New York, have invented a new and Improved Radiator-Cap Lock, of which the following is a full, clear, and exact description.

The present invention relates to new and useful improvements in closures for the filling opening of receptacles, and pertains more particularly to closures for the caps of motor vehicle radiators.

In some instances the radiator caps of motor vehicles carry ornaments which are highly valued by the owner of the car, and it is one of the primary objects of the present invention to provide means whereby the surreptitious removal of the cap together with the ornament is prevented.

It is a further object of the present invention to so construct a device of this character as to adapt it to use on a radiator cap of any of the well-known types commonly employed.

A further object of the invention is to provide a locking means which is pivotally supported from the radiator cap within the water space of the radiator, said locking means being so constructed as to permit of its insertion through the radiator filling opening.

It is a still further object of the invention to provide the cap with means for preventing the swinging of the locking means about its point of suspension when the same is in the locked position, thus eliminating undesirable noises which would result from the locking means striking the walls of the radiator under movement owing to the motion of the vehicle to which it is attached.

With the above and other objects in view, reference is had to the accompanying drawings, in which—

Figure 1 is a detail vertical sectional view of a portion of a radiator showing a device constructed in accordance with the present invention in its closed operative position thereon;

Fig. 2 is a similar view showing the position of the several parts when the radiator cap is opened to permit of a filling of the radiator;

Fig. 3 is a horizontal sectional view taken on the line 3—3 of Fig. 1;

Fig. 4 is a horizontal sectional view taken on the line 4—4 of Fig. 1, and showing the locking arms in extended position;

Fig. 5 is a similar view showing the locking arms in retracted position.

Referring more particularly to the drawings, the reference character 10 designates the top wall of a radiator, and said top wall is provided with a radiator filling spout 11. This filling spout 11 is externally screw-threaded as shown at 12, and said spout is adapted to receive an internally screw-threaded cap 13, by means of which it is closed.

Secured to the inner face of the closing cap 13, is a bearing block 14. The block 14 is secured to the closing cap 13 by means of a bolt 15, which has screw-threaded engagement with an internally threaded socket 16 in the block 14, and to prevent removal of the bolt 15, a transverse pin 17 is employed, said pin passing through the walls of the internally threaded recess or socket 16 and through the bolt 15. The lower end of the bearing block 14 is bifurcated, as shown at 18, and pivotally mounted between the furcations of the lower end of the bearing block 14, by means of a transverse pin 19, is a depending arm 20. Extending into the body portion of the bearing block 14 from the base of the furcations of the lower end, is a recess 21, and mounted in said recess 21, is a coil spring 22. This coil spring 22 serves to force a pawl 23 outwardly of the recess, and said pawl 23 is adapted for engagement within a curved seat 24 on the upper end of the depending arm 20. By this means it will be apparent that when the depending arm 20 is swung to the vertical position shown in Fig. 1, the pawl 23 engaging the curved seat 24 will prevent movement of the depending arm 20 about its pivotal point 19 under the influence of the vibrations incident to the running of the vehicle. At the same time, however, this pawl permits of the depending arm 20 being moved relatively to the bearing block 14 in order that the cap 13 may be moved out of alinement with the filling opening to permit of the filling of the radiator.

Slidably mounted on the depending arm 20, is a substantially circular member 25, and projecting from said member in opposite directions are bearing arms 26. These bearing arms 26 are each provided with a rectangular passage, and slidably mounted in each of said rectangular passages is an

arm 27. Each of these slidable arms 27 is provided on each of its ends with a vertically projecting lug 28, which lug serves to prevent accidental displacement of the slidable arms 27 in the bearing arms 26. The slidable arms 27 are adapted to be secured against movement relatively to the bearing arms 26 by means of set screws or the like 28′, which pass through the top wall of the recesses in which the slidable arms 26 are mounted, and are adapted for engagement with the arms 27.

Carried by the depending arm 20 is a collar 30, and said collar serves to prevent the passage of the member 25 off the free lower end of the depending arm 20. This collar 30 is capable of adjustment with respect to the length of the depending arm 20 and is adapted to be secured in its adjusted position by means of a set screw 31 adapted to pass through the collar into engagement with the depending arm 20, as more clearly shown in Figs. 1 and 2.

The operation of the device is as follows: To position the device within the radiator, the slidable arms 27 are moved to a contracted position with respect to the member 25, as shown in Fig. 5, and said member 25 together with the slidable arms 27, are inserted into the filling opening or through the filling spout to the interior of the radiator. After it has been so positioned, the slidable arms 27 are moved to the extended position shown in Figs. 1, 2 and 4, which operation may be readily accomplished by engagement of a screw-driver or other similar tool with one of the lugs 28, after which the set screws 28′ are turned up into engagement with the slidable arms 27 to prevent movement thereof relatively to the member 25. If desired, the threads of the set screws 28′ may be suitably mutilated to prevent of their loosening to permit of a movement of the slidable arms to a point where the device could be removed from the radiator.

To remove the cap 13, the same is merely rotated about the bolt 15 until its thread disengages the thread 12 of the filling spout 11. After the cap has been disengaged from the filling spout, the cap is rocked about the pivot point 19 to the position shown in Fig. 2, in which position it will lie outside of the filling spout 13 to permit of a ready filling of the radiator. When the device has been moved to the position shown in Fig. 2, it will be seen that the slidable arms 27 will engage the under face of the top wall of the radiator and will prevent the removal of the cap and the arm 20.

By forming the seat 24 in the upper end of the depending arm 20 curved and the nose of the pawl 23 curved similarly, it will be seen that the spring 22 will exert enough tension to maintain the depending arm at all times in a vertical position, and will prevent its jarring loose to a position where it engages the side walls of the radiator and cause a rattling sound, and yet at the same time it will permit of the movement of the cap 13 to the position in which it is shown in Fig. 2.

From the foregoing it will be apparent that the present invention provides means by which the radiator cap may be secured to the radiator against surreptitious removal, and at the same time, the device is so constructed as to permit of the ready manipulation of the cap in order that it may carry out its various functions.

What is claimed is:

1. A device of the character described comprising a radiator and its filling cap, a depending arm pivotally carried by the filling cap, means slidably carried by the depending arm for engagement with the interior surface of the radiator to prevent removal of the cap, and means for preventing movement of the depending pivoted arm relatively to the cap and radiator.

2. A device of the character described comprising a radiator and its filling cap, a depending arm pivotally carried by the filling cap, means adjustably secured to the depending arm for engagement with the interior surface of the radiator to prevent movement of the cap, and means to prevent swinging movement of the pivoted arm.

3. A device of the class described comprising in combination with a radiator and its closing cap, a bearing block carried by the radiator cap, an arm depending from the bearing block and pivotally mounted therein, means adjustably secured to the arm for engagement with the interior of the radiator to prevent removal of the depending arm, and means carried by the bearing block and adapted to prevent swinging movement of the depending arm relatively to the bearing block.

4. A device of the character described comprising in combination with a radiator filling cap, a bearing block secured to the cap on the interior thereof, said bearing block being provided with a longitudinally extending recess, a depending arm pivotally secured to the bearing block and provided on its upper end with a curved seat, means slidably carried by the depending arm and adapted for engagement with the interior surface of the radiator to prevent removal of the arm therefrom, and means mounted in said longitudinal recess in the bearing block and adapted for engagement in the curved seat in the upper end of the arm to prevent swinging movement of the depending arm relatively to the bearing block upon which it is pivoted.

5. In combination with a radiator and its closing cap, a bearing block carried by the

cap, means pivotally carried by the bearing block and extending into the radiator, locking means slidably carried by the last mentioned means for preventing removal thereof relatively to the radiator, and means for preventing displacement of said locking means.

6. In combination with a radiator filling cap, a bearing block carried thereby, a depending arm carried by the bearing block and pivotally mounted thereon, a substantially circular plate movable longitudinally of the depending arm, rigid arms adjustably carried by said substantially circular plate and adapted to be moved to position to prevent removal of the depending arms from the radiator, and means for preventing swinging movement of the depending arm relatively to its pivotal point.

7. In combination with the filling cap of a radiator, a bearing block carried by the cap on the interior thereof and provided with a bifurcated lower end and a longitudinally extending recess, a depending arm pivotally mounted in the bifurcated lower end of the bearing block and adapted to extend within the radiator, said arm being provided with a notched seat on its upper end, a plate slidably mounted on the depending arm, a plurality of adjustable rigid arms projecting radially from said plate, means carried by the plate for securing said rigid arms in adjusted position, means carried by the lower end of the depending pivoted arm to prevent accidental displacement of the plate from the depending arm, and means movable longitudinally of the longitudinal recess of the bearing block and adapted for engagement with the notched seat on the upper end of the depending arm to prevent swinging movement of said depending arm about its pivotal point.

8. A lock for radiator caps comprising a depending member secured to the radiator cap and adapted to extend into the radiator through its filling opening, angularly projected arms slidably mounted on said depending member and adapted for engagement with the interior walls of the radiator to prevent removal of the depending member, and means carried by the depending member for limiting the movement of said angularly projected arms thereon in one direction.

9. A lock for radiator caps comprising a depending member carried by said cap and adapted to be projected into the filling opening of a radiator and hang suspended therein when the cap is in position thereon, oppositely disposed arms loosely carried by said depending member and adapted for engagement with the inner walls of the radiator to prevent removal of the depending member from the radiator filling opening, and means carried by said depending member and adjustable thereon to prevent removal of the oppositely disposed arms therefrom.

THOMAS HILL.