F. C. WILLIAMS.

CLOSURE PLUG.

APPLICATION FILED OCT. 9, 1920.

1,420,899. Patented June 27, 1922.

FIG. 1.

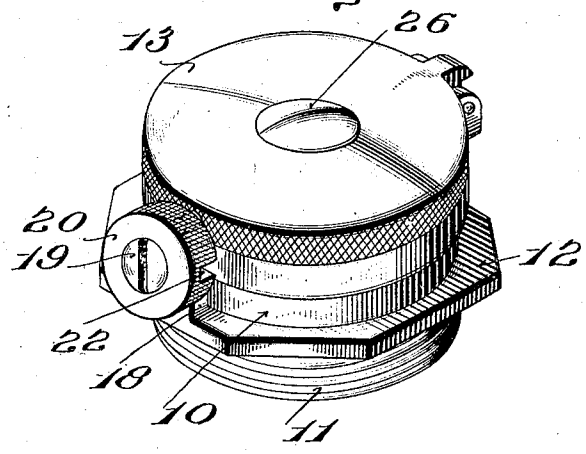


FIG. 2.

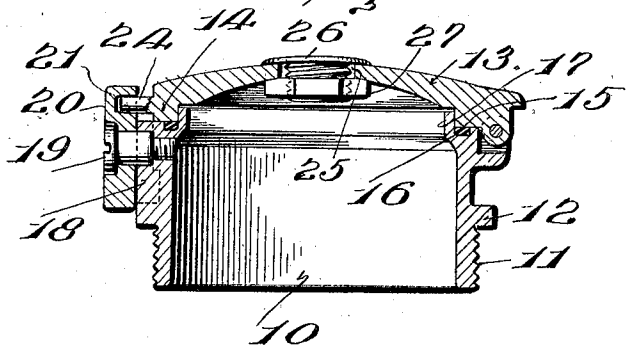
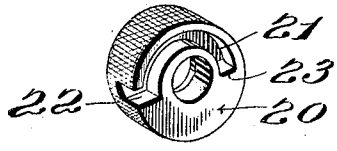


FIG. 3.



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CLOSURE PLUG.

1,420,899. Specification of Letters Patent. Patented June 27, 1922.

Application filed October 9, 1920. Serial No. 415,725.

To all whom it may concern:

Be it known that I, FRANK C. WILLIAMS, a citizen of the United States, residing at Salt Lake City, in the county of Salt Lake and State of Utah, have invented a new and useful Closure Plug, of which the following is a specification.

This invention is a closure device for the filling opening of a receptacle designed to contain liquids.

One of the objects of the invention is to provide a device of the character mentioned, which will be simple and cheap in construction, and which will be capable of replacing the usual screw plug now in general use, on automobile radiators, gasoline tanks for automobiles, and the like. A further object is to provide a plug having a closure cap which may be opened or closed by a quick movement so that the operator will not run the risk of burning his fingers as is frequently done when unscrewing plugs of the type now in general use. A further object is to provide means for locking the closure cap in place so that it will not jar open while the vehicle is in operation. A further object is to provide a closure cap attached to the plug so that it will not become lost or misplaced.

The invention will be hereinafter fully set forth and particularly pointed out in the claims.

In the accompanying drawing:—

Figure 1 is a perspective view illustrating a closure device constructed according to the invention. Figure 2, is a longitudinal sectional view. Figure 3 is a detail perspective view illustrating the locking cam.

Referring to the drawing, 10 designates a tubular body, threaded at its lower end 11, to removably engage a correspondingly threaded portion in the filling opening of an automobile radiator, gasoline tank, or the like. Contiguous to the threaded portion 11 the body is made angular as indicated at 12, to be engaged by a wrench. It is to be understood that although the threads 11 are shown on the exterior of the body 10, they may be placed on the interior of the body without departing from the spirit of the invention.

Hinged to the upper edge of the body 10, is a cap 13, provided with a peripheral shoulder 14, positioned to engage a packing ring 15, located in an annular groove 16, formed in the upper edge of said body 10. The inner wall of the groove is extended to provide a flange 17, positioned to enter the cap 13, within the shoulder 14.

The body 10, is provided with an external flat-faced lug 18, which is tapped to receive a pivot screw 19, said screw having a smooth shank portion, upon which is rotatably mounted a locking member 20. Said locking member is retained in position by the head of the screw 19, and to provide a finished appearance, the locking member is provided with a recess to receive said head. The inner face of the member 20 is provided with a pin engaging groove 21, having a slot 22 at one end, extending through the periphery of the cam, and a stop shoulder 23, at the other end. Said slot provides clearance for the passage of a pin 24, projecting from the periphery of the cap 13, the groove 21 being so positioned that the pin 24, after passing through the slot, may be engaged by the groove when the locking member is rotated. When in locking position the pin is concealed by the locking member, as illustrated in Figure 1.

The cap 13 is shown as provided with a central aperture 25, to receive the shank of a headed plug 26, said shank being threaded to engage a nut 27, by means of which the plug is retained in position. Should it be desired to attach a thermometer or the like, the plug 26 is removed and the thermometer retained in place by the nut 27.

In practice the cap 13 is normally locked in closed position by means of the engagement of the locking pin 24, with the groove 21 of locking member 20. When it is desired to open the cap, the locking member 20 is rotated so as to bring the slot 22 to the top, whereupon clearance is provided for the pin 24, the cap may then be swung upwardly on its hinge connection. This may be done by a quick movement, and the hands of the operator are at no time in danger of being scalded by jets of steam or hot water, which often spurt through the filling opening of an automobile radiator. In closing, the cap is swung downwardly so that the pin 24 will pass through slot 22 into the groove 21, and a slight turn of the member 20 will cause the said groove to so engage the pin, that the cap is positively locked in closed position, and the pin 21 is concealed from view and so protected that it may not be accidentally struck or raised.

From what has been said it will be observed that the body 10 may be substituted for the usual screw plug now in general use on radiators for motor vehicles, and that the closure cap thereof may be readily opened or closed by a quick movement without danger of injuring the operator. The device is simple in construction and can be manufactured at small cost. It will be particularly noted that a very simple form of locking device is provided which is capable of efficiently maintaining the cap in closed position. Another advantage is that providing the curved groove 21 near the periphery and extending the same partially around the locking member 20, the grooved portion will be lighter in weight than the portion disposed diametrically opposite thereto, the heavier portion being so positioned as to resist unlocking rotation of said locking member when the latter is in locking engagement with the pin 24.

Having thus explained the nature of the invention and described an operative manner of constructing and using the same, although without attempting to set forth all of the forms in which it may be made, or all of the forms of its use, what is claimed is:—

1. A closure plug of the character described comprising a tubular body having its lower end provided with means whereby it may be engaged with the filling opening of a receptacle, a cap hinged to said body and provided with a locking pin projecting from the periphery thereof, and a rotatable member carried by said body and having means for detachably engaging, concealing and protecting said locking pin.

2. A closure plug of the character described comprising a tubular body having its lower end provided with means whereby it may be engaged with the filling opening of a receptacle, a cap hinged to said body and provided with a locking pin projecting from the periphery thereof, and a rotatable locking member removably mounted upon said body and having means for detachably engaging, concealing and protecting said locking pin.

3. A closure plug of the character described comprising a tubular body having its lower end provided with means whereby it may be engaged with the filling opening of a receptacle, a cap hinged to said body and provided with a locking pin projecting from the periphery thereof, a locking member having its inner face provided with a curved groove near its periphery positioned to register with said locking pin, the grooved portion of said locking member being lighter than the portion disposed diametrically opposite thereto, the heavier portion being so positioned as to normally resist unlocking rotation of said locking member when it is engaged with said pin.

4. A closure plug of the character described comprising a tubular body having its lower end provided with means whereby it may be engaged with the filling opening of a receptacle, a cap hinged to said body and provided with a locking pin projecting from the periphery thereof, and a rotatable member having its inner face provided with a curved groove positioned to receive said pin, said locking member having a slot leading from its periphery to said groove to provide clearance for said locking pin.

5. A closure plug of the character described comprising a tubular body having its lower end provided with means whereby it may be engaged with the filling opening of a receptacle, a cap hinged to said body and provided with a locking pin projecting from the periphery thereof, a screw removably mounted in said body, said screw having a smooth shank portion, and a rotatable member mounted upon the smooth shank portion of said screw and having means for detachably engaging, concealing and protecting said locking pin.

6. A closure plug of the character described comprising a tubular body having its lower end provided with means whereby it may be engaged with the filling opening of a receptacle, a cap hinged to said body and provided with a locking pin projecting from the periphery thereof, a screw removably mounted in said body, said screw having a smooth shank portion, and a rotatable member mounted upon the smooth shank portion of said screw and having its inner face provided with a groove positioned to engage said pin and having a slot leading from its periphery to said groove to provide clearance for said pin.

In testimony whereof I have hereunto set my hand.

FRANK C. WILLIAMS.