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J. S. REID

1,777,767

CLOSURE STRUCTURE

Filed March 5, 1928

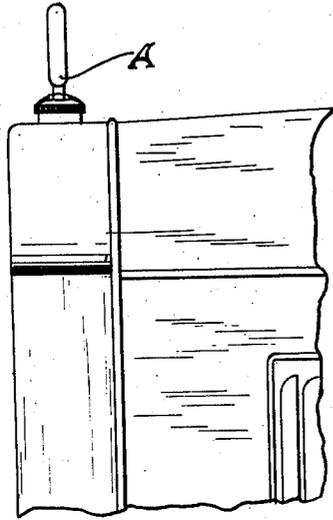


FIG. 1

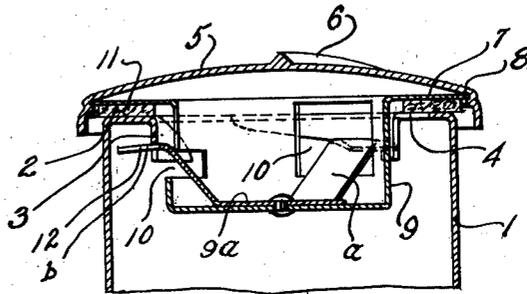


FIG. 2

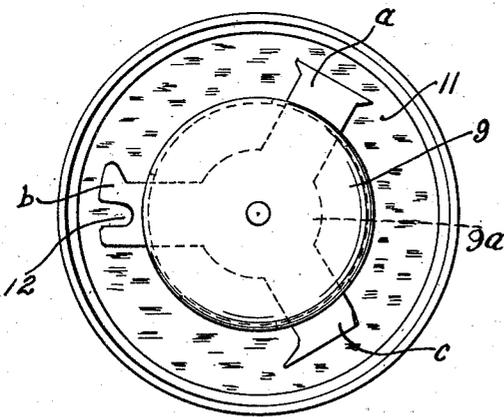


FIG. 3

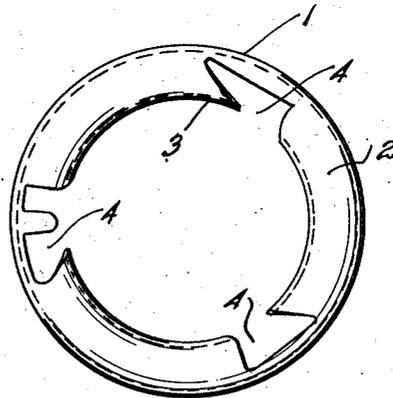


FIG. 4

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CLOSURE STRUCTURE

Application filed March 5, 1928. Serial No. 259,139.

This invention relates to closures such as are used for radiators, splash pans and other parts of automobiles and particularly where the closure for one reason or another should be applied to the device to be closed in one definite angular relation.

The object of the invention is to provide a closure of this kind in which the closure member is secured to the neck member of the part to be closed by a well known bayonet lock construction and in which said members are provided with means for insuring their connection in only one definite angular relation.

A further object is to provide a construction of this kind which is simple and in which the positioning or orientating means is included in the locking parts.

Further objects of the invention are in part obvious and in part will appear more in detail hereinafter.

In the drawings, Fig. 1 illustrates the device applied for one kind of use on an automobile, and particularly as a closure for a radiator; Fig. 2 is a detail sectional elevation showing the closure applied to a neck; Fig. 3 is a bottom plan view of the closure; and Fig. 4 is a plan view of the neck.

The desirability for the present invention arises under varying circumstances where, for some reason, it is necessary to apply a closure in one definite angular position to a device to be closed. Thus, the closure for the splash or dust pan at the front of an automobile is sometimes ornamented, as with a figure or design, and it is desirable to have the figure or design stand upright when the closure is in its final locked position. Again, the closure for a radiator sometimes carries an ornament or even the temperature indicator or motor meter A shown in Fig. 1, whose face must be presented to the driver of the car and because of which a definite angular relation is necessary.

In the drawings, 1 represents the neck or

other portion of any such device to be closed. It is of ordinary form in the sense that it is equipped to take a cap or closure secured to it by bayonet or other quick detachable operation, such as by being provided at its open end with an inwardly extending flange 2 bent back at its inner end edge and having depending portions 3 which form cams for cooperation with locking devices on the cap. The several cams are separated by openings or gate-ways 4, and all of the parts so far described may be of any usual construction such as shown in my prior Patent No. 1,593,847, granted July 27, 1926.

The cap comprises a body portion carrying yieldable locking devices or fingers. It may be of various forms and as shown comprises an outer shell 5 exposed to view when the closure is in operative position and on which will therefore appear the motor meter A or the design or figure conventionally shown at 6, Fig. 2, and which requires the closure to be applied in one definite angular position. In said shell is mounted a carrier for the locking fingers, such as a sheet metal inner wall, having an annular flange portion 7 non-rotatably held at its outer edge in the outer shell, as by crimping the metal around its periphery at 8. The central portion of the disk is depressed into cup form at 9. This cup shaped body suitably supports any suitable number of locking fingers. In the arrangement shown the locking fingers are three in number marked respectively, *a*, *b* and *c*. They project radially outwardly from a central disk portion 9^a firmly riveted or otherwise non-rotatably secured to the inner face of the cup and contained in its chamber, the several fingers being bent upwardly and extending outwardly through slots or openings 10 in the cup wall. These outwardly projecting finger ends ride along the edges of the cams 3 and in rotating the cap to its closed or locked position produce more or less compression of the gasket 11 lying between the flange

2 of the neck and the annular portion 7 of the cap plate.

The definite angular relation between the cap and neck members, according to the present invention, is obtained and assured by assigning to one or more of the locking fingers and to the recess or gate-way through which it passes, a definite shape distinguishing it from others. Thus, as shown in Fig. 3, the several fingers *a*, *b* and *c* have different shapes, finger *b*, for example, having a re-entrant notch or recess 12 so that it fits one and only one of the recesses 4 in the neck. Obviously, the several fingers may be made of quite different shapes from those shown in the drawings, but the gates or openings 4 will always be matched to the fingers. As a result, it is possible to apply the cap to the neck only in one position and when it is rotated to its final locked position, the exposed part of the cap is presented to view in the proper position.

While I have referred to the fact that the several fingers *a*, *b* and *c* may be different in shape, it should be remembered that the essential thing is that one finger and its cooperating recess, should be shaped differently from all others. Therefore, assuming that fingers *a* and *c* and their cooperating recesses were alike in shape, the finger *b* should not be able to pass through the recesses for fingers *a* and *c*, and the fingers *a* and *c* should not be able to pass through the recess for finger *b*.

What I claim is:

1. In combination, a device having a neck member, and a closure member for application to said neck to close the device, said members being provided with cooperating locking parts adapted for quick connection and disconnection by rotation of said closure member relative to said neck member and positioning means associated with said locking parts whereby the closure may be applied to the neck in only one angular relation thereto.

2. In combination, a device to be closed provided with a neck member, and a closure member therefor, cam means on the neck member terminating in openings leading thereto, locking fingers on the closure member adapted to be introduced through said openings and to the cam means and cooperating therewith for locking the closure on the neck member, said fingers and openings being shaped to match each other and some fingers differing in shape from others, whereby the closure member may be applied to the neck member in only one position.

3. In combination, a device having a neck member, cam means on said neck member terminating in openings providing access to the under side of said cam means, the contour of one of said openings being different from the contour of another of said openings, a closure member for application to said neck member to close the device, and locking fingers on said

closure member adapted to be introduced through said openings for cooperation with said cam means for locking the closure member on the neck member, the contour of one of said fingers being similar to the contour of said one opening but different from the contour of another of said fingers, whereby said closure member may be applied to the neck member in only one position.

In testimony whereof I hereby affix my signature.

JAMES S. REID.