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BRACING MEANS FOR TUBULAR FILLER MEMBERS

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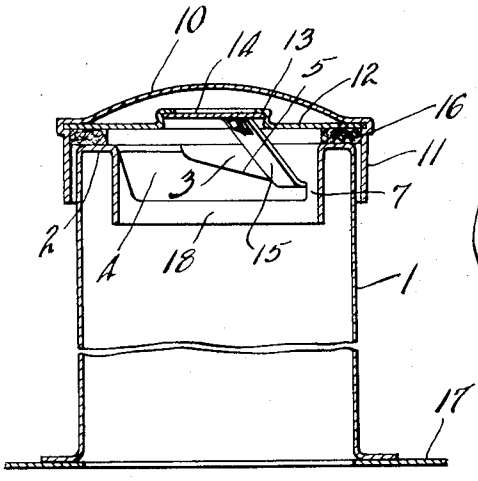



Fig. 1

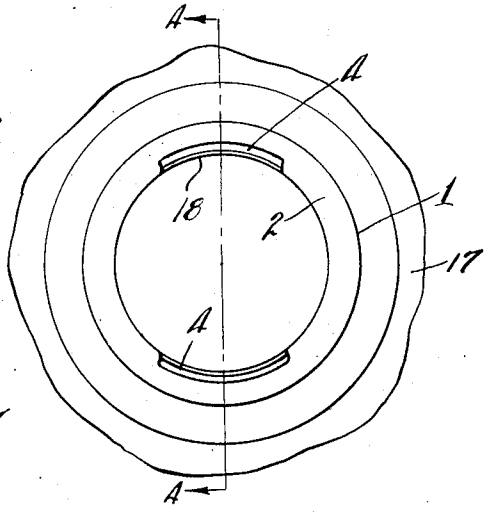



Fig. 2

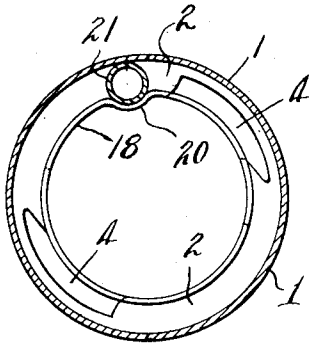



Fig. 3

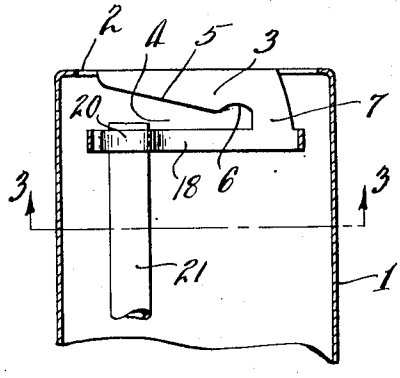



Fig. 4

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# UNITED STATES PATENT OFFICE.

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## BRACING MEANS FOR TUBULAR FILLER MEMBERS.

Application filed September 7, 1926, Serial No. 134,068. Renewed June 11, 1927.

This invention relates to improvements in cap closed tubular members, such as the filler necks of automobile fuel tanks and the like.

More particularly, the present invention relates to improvements in tubular members of the type provided with opposed cam portions with which co-operate locking finger portions of the cap member. These cam portions are usually formed on the lower edges of depending flanges arranged within and lying in planes substantially parallel with the cylindrical body wall portion of the tubular member. At the inner or cap seating ends of these cam portions, said flanges are provided with depending projections forming stops for the locking fingers of the cap member so as to limit relative rotary movement of the cap and tubular members.

One objection with tubular members of this type is that the depending stop portions of the cam carrying flanges are often bent radially outward by large and heavy gasoline filling nozzles inserted into the tubular members for filling with fuel the tanks with which said tubular members are associated. As a result of bending said stop portions out of the path of travel of the locking fingers of the cap member, relative rotary movement of said cap and tubular members is not limited, with consequent objectionable results.

The object of the present invention is to provide simple and improved bracing means for said stop portions which effectively prevents displacement thereof by a gasoline filling nozzle or like device.

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

Referring to the drawing, which represents one suitable embodiment of the invention, Fig. 1 is a vertical sectional view of a tubular member embodying my invention with a cap member applied thereto; Fig. 2 is a top plan view of said tubular member; Fig. 3 is a cross sectional view thereof on the line 3—3, Fig. 4; and Fig. 4 is a vertical sectional view on the line 4—4, Fig. 2.

The tubular member illustrated in the drawing comprises a sheet metal cylindrical body wall 1 provided at its upper end with an inwardly extending annular flange 2 terminating in a depending flange 3. At two diametrically opposed points, the horizontal flange 2 and the depending flange 3 are cut away, so as to provide two opposed recesses or passages 4 through which may be passed the locking fingers of a cap member, as will later appear. As a result of said cutaway portions, two substantially semi-circular flanges 3 are provided, and the lower edges of these depending flanges are suitably inclined to provide gradual cam portions 5, with which cam portions the locking fingers of the cap member co-operate, as is usual and as will more fully appear hereinafter.

Each of said cam portions is provided at its inner or cap seating end with a dwell or rest portion 6, on which the locking fingers of the cap member are adapted to seat when the cap member is in fully seated position upon the tubular member. Just beyond said dwell portions, the depending flanges 3 are each provided with a depending lug or projection 7 which forms a stop for the locking fingers of the cap member when said fingers are moved upwardly along the cam portions. As a result of such limitation of relative rotary movement between the cap and tubular members, the locking fingers of the cap member are brought to rest on the dwell portions 6 of the cam portions, which denotes full seating position of the cap member.

The cap member co-operating with the tubular member may be of any suitable form, and for purposes of illustration is here shown as of the construction disclosed in my prior patent for closures, No. 1,593,847, granted July 27, 1926, and to which patent reference may be had, if desired.

Briefly, said cap member includes a suitable outer body comprising a dome-shaped top portion 10 and a depending marginal skirt portion 11, within which portions is suitably crimped at the junction thereof a relatively flat, annular supporting member 12. Said supporting member is provided at its inner circular edge with an upwardly extending flange 13, to which is suitably crimped the substantially circular, flat body portion 14 of a locking member. Said locking member is provided with a pair of diametrically opposed resilient locking fingers 15, only one of which is here shown, said fingers extending downwardly and outwardly

from the circular body portion. A gasket 16 is preferably provided which is adapted to lie between the horizontal flange 2 of the tubular member and the supporting member 12 of the cap member.

The cap member is applied to the tubular member in the usual manner of bayonet joint connections, the two locking fingers of the cap member being passed down through the recesses or passage ways 4 of the tubular member. The cap member is then turned in a clockwise direction, as viewed in Fig. 1, which causes said locking fingers to ride up the cam portion 5, the rotary movement of the cap member being continued until said fingers strike the stop portions or abutments 7, at which point said fingers are resting upon the cam dwell portions 6. To remove the cap member, it is only necessary to turn it in the reverse direction as will be readily understood.

As thus far described, the tubular member and its co-operating cap member are of the same construction as disclosed in my above mentioned prior patent, and the improvement forming the subject matter of the present application will now be described.

When large and heavy nozzles are inserted into the tubular member to fill with fuel the tank 17 with which the tubular member is associated, the depending stop portions 7 of flanges 3 are frequently bent radially outward, out of the path of movement of the locking fingers of the cap member as they ride upwardly along the cam portions 5, so that said stop portions are ineffective to limit relative rotary movement of the cap and tubular members. In order to maintain said stop portions in proper functioning position, said portions are provided with bracing means in the form of a ring member 18 arranged at the bottom thereof and either formed integral therewith or suitably secured thereto, the integral arrangement being here shown. Said ring member lies within the same annular plane as flanges 3 and is here shown as being of relatively slight depth, although a deeper ring member may be provided, if desired. Displacement of the stop portions 7 is not only effectively prevented by said ring member, but both flanges 3 in their entirety are braced, and by means which is of simple form so that little or practically nothing is added thereby to the cost of manufacture of the tubular member.

If the tubular filler member is used with an automobile radiator, the bracing ring 18 may be provided with an offset portion 20, Figs. 3 and 4, to receive the upper end portion of a steam or overflow pipe 21, thereby enabling said pipe to be easily maintained in proper position.

What I claim is:

1. In a tubular filler neck of the type having a flange portion provided with a cam surface and a stop projection and which is adapted to be closed by a closure having a locking projection for cooperation with said cam surface and limited in its movement by said stop projection, bracing means for said projection.

2. In a tubular filler neck of the type having flange portions provided with cam surfaces and stop projections and which is adapted to be closed by a closure having locking projections for cooperation with said cam surfaces and limited in their movement by said stop projections, means connecting said projections for bracing the same.

3. In a tubular filler neck of the type having flange portions provided with cam surfaces and stop projections and which is adapted to be closed by a closure having locking projections for cooperation with said cam surfaces and limited in their movement by said stop projections, means connecting said projections and integral therewith for bracing the same.

4. In a tubular filler neck of the type having flange portions provided with cam surfaces and stop projections and which is adapted to be closed by a closure having locking projections for cooperation with said cam surfaces and limited in their movement by said stop projections, ring means associated with said projections for bracing the same.

5. In a tubular filler neck of the type having flange portions provided with cam surfaces and stop projections and which is adapted to be closed by a closure having locking projections for cooperation with said cam surfaces and limited in their movement by said stop projections, ring means integral with said projections for bracing the same and lying in the same plane as said flange portions.

6. In a tubular filler neck of the type having flange portions provided with cam surfaces and stop projections and which is adapted to be closed by a closure having locking projections for cooperation with said cam surfaces and limited in their movement by said stop projections, ring means associated with said projections for bracing the same, and provided with an offset portion to receive a pipe or the like.

In testimony whereof I hereby affix my signature.

JAMES S. REID.