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(54) **A protective cap for container discharge valves, in particular beer taps for draught beer kegs.**

(57) A protective cap for container discharge valves, in particular beer taps for draught beer kegs, comprises a top plate (1) and a skirt formed integrally therewith and provided with inwardly resilient, catches (3) to abut on the underside of a collar (10) on the discharge valve to prevent the cap from being removed without visual damage thereto. The catches (3) are substantially plane and approximately perpendicular to the top plate (1) whereas they extend obliquely inwards from the inner side of the skirt (4) in a plane parallel to the top plate. The upper edge (5) of each catch (3) is substantially parallel to the top plate (1), while the lower edge (6) extends obliquely upwards from the inner side of the skirt (4) so that the axial extension of the inwards directed edge (7) of the catch (3) is substantially smaller than the axial extension at the inner side of the skirt.

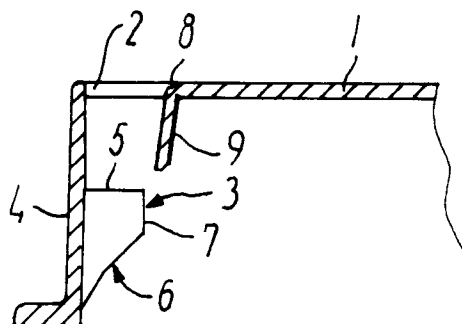


FIG. 3

The invention relates to a protective cap for container discharge valves, in particular beer taps for draught beer kegs, comprising a top plate and a skirt formed integrally therewith and provided with inwardly resilient catches, preferably arranged pairwise or groupwise in the circumferential direction and adapted to abut on the underside of a collar on the discharge valve to prevent the cap from being removed without visual damage thereto.

Such protective caps primarily functioning as a pilferproof seal for draught beer kegs are disclosed in DE-A-34 17 812 and DK-B-158 083, the latter of which describes a design particularly appropriate for die-casting and additionally provides a satisfactory water- and dust-tightness in its position of use.

In said prior art designs the catches extend obliquely upwards from the inner side of the skirt at an angle with the skirt which when unloaded is approximately 45°.

This design of the catch is based on the prerequisite that the valve collar of certain standard designs of draught beer kegs has an obliquely inwards and downwards directed underside so that the catch from the position it occupies, substantially parallel to the inner side of the skirt when the cap upon mounting is pressed down over the collar, unimpededly may be pivoted inwardly into its position of use and at the same time the inwards directed upper edge of the catch still abuts on the underside of the collar, thereby substantially retaining the cap in the axial direction. As a further prerequisite of the correct function of the catch there must be sufficient space for the catch to swing in.

However, the above mentioned prerequisites are not always fulfilled, because there are on the market, in some countries even with a considerable distribution, draught beer kegs with a comparatively thin valve collar having a plane underside and in which, moreover, the circumference of the valve collar is not always completely circular but presents rectilinear chord sections. Moreover, said kegs are frequently provided with a circumferential bead under the valve collar and at a short distance from its underside, so that only a comparatively narrow cut-out is left between the valve collar and said bead which in practice prevents the catches of the prior art caps from swinging sufficiently inwardly to occupy the intended position of use.

An object of the invention is to provide a protective cap particularly appropriate for the latter type of draught beer kegs, from which said drawbacks have been eliminated which in practice cause that the prior art protective caps cannot be mounted satisfactorily.

According to the invention this is obtained in that the catches are substantially plane and approximately perpendicular to the top plate while in a plane parallel to the top plate they extend obliquely inwards from the inner side of the skirt, the upper edge of each

catch being substantially parallel to the top plate at a distance therefrom corresponding to the thickness of said collar, whereas the lower edge extends obliquely upwards from the inner side of the skirt so that the axial extension of the inwards directed edge of the catch is substantially smaller than the axial extension at the inner side of the skirt.

Owing to the upper edge of the catch being parallel to the top plate, the protective cap according to the invention may be implemented to be secured on valve collars having a plane underside with no possibility of axial displacement after the mounting, and the comparatively short axial extension of the inner edges of the catches entails that the catches may be received even in a comparatively narrow clearance between the collar and a subjacent bead.

The bevelled cut of the lower edge of the catch entails that the mounting is substantially effected as easy as in prior art caps. A further easily mountable design may be obtained in that the lower edge of each catch has a substantially concavely bent course or a course composed of rectilinear sections.

In a design in which the catches are pairwise arranged in such a manner that the two catches of each pair converge towards each other, an improved security against rotation of the cap in relation to the valve collar may further be obtained so as to offer an improved security against non-damaging removal of the cap, also from valve collars which at the circumference as mentioned above has one or more rectilinear chord sections in which the available catches do not engage below the valve collar.

In the same manner as known per se from the above mentioned DK-B-158083 there may be obtained a design particularly appropriate for die-casting and easy to implement, in which the cap may be produced in its final shape in one step, in that the top plate is in axial alignment with each of the catches and has a cut-out extending to the edge of the top plate which at the inner edge of the cut-out is connected through a flexural hinge with a sealing flap that prior to the mounting is directed downwards towards the associated catch but which by the mounting of the cap is urged upwards by the valve collar into a position in which it fills up the cut-out.

The invention will now be described in detail with reference to the drawings, in which

Fig. 1 illustrates a part of a preferred embodiment of the protective cap according to the invention, viewed from above prior to mounting,

Fig. 2 is an enlarged section of Fig. 1,

Fig. 3 is a sectional view parallel to the axis and along the line III-III in Fig. 2,

Fig. 4 is a plane view of a catch,

Fig. 5 is an axial sectional view of the protective cap disposed on a draught beer keg having a valve collar with a plane underside, and

Fig. 6 is a view from above of the valve collar in

Fig. 5.

Fig. 1 shows one half of the top plate 1 of a preferred embodiment of the protective cap according to the invention. In the illustrated embodiment a number of cut-outs 2 at equally large angular intervals, e.g. 22.5°, is provided along the circumference of the top plate 1, said cut-outs being axially flush each with a respective, obliquely disposed, inwardly directed catch 3.

The catches are substantially plane and approximately perpendicular to the top plate 1. The catches extend obliquely inwards in a radial plane parallel to the top plate 1, from the inner side of the skirt 4 connected with the top plate 1 at an angle of e.g. 55 to 60° with a radius centrally of the flap.

The upper edge 5 of the catches 3 is substantially parallel to the top plate 1 with the view of abutting on a plane underside of a valve collar, while the lower edge 6 in order to permit the cap to be pressed down over the collar upon mounting extends obliquely upwards from the inner side of the skirt. The axial extension of the flap thus becomes considerably smaller at its inner edge 7 than the axial extension at the inner side of the skirt, e.g. smaller than half of it.

An optimum mountability is obtained as a result of the lower edge 7 presenting a substantially concave course, e.g. as illustrated in Fig. 4 with two rectilinear sections 6a and 6b, of which section 6a positioned closest to the inner side of the skirt extends more steeply upwards than section 6b directed towards the inner edge 7. This design offers a good security against damage to the flap even when in case of a comparatively forceful pressing-down over a valve collar.

The design of the top plate 1 with the cut-outs 2 in axial alignment with the catches 3 ensures that the cap may be implemented in its final shape by die-casting in a comparatively simple mould consisting of two parts. At the inner edge of each cut-out the top plate 1 is connected through a flexural hinge 8 with a sealing flap 9 projecting downwards in the unloaded condition and which, however, upon mounting the cap on a valve collar is urged upwards to the position illustrated in Fig. 5.

The sectional view in Fig. 5 illustrates the mounting of the cap on a keg valve collar 10 of the type having a comparatively small thickness and a plane underside and in which a circumferential bead 12 is further mounted on the valve socket 11 at a short distance under the collar 10, so that there is merely a comparatively narrow incision to receive the catches 3.

As illustrated in Fig. 6, valve collars of the type concerned are not always circular but may have one or more rectilinear chord sections 14.

In order to offer a supplementary security against release of the catches 3 at such a chord section, the catches are, in connection with the pairwise mount-

ing in Fig. 1, formed so that the two catches of each pair converge towards each other. When the protective cap is conformed as to size to the valve collar on which it is to be mounted a good security against rotation of the cap in relation to the valve collar is thus obtained and thereby against non-damaging removal of the cap.

Claims

1. A protective cap for container discharge valves, in particular beer taps for draught beer kegs, comprising a top plate (1) and a skirt formed integrally therewith and provided with inwardly resilient catches (3), preferably arranged pairwise or groupwise in the circumferential direction and adapted to abut on the underside of a collar on the discharge valve to prevent the cap from being removed without visual damage thereto, characterized in that the catches (3) are substantially plane and approximately perpendicular to the top plate (1) while in a plane parallel to the top plate they extend obliquely inwards from the inner side of the skirt (4), the upper edge (5) of each catch (3) being substantially parallel to the top plate (1) at a distance therefrom corresponding to the thickness of said collar, whereas the lower edge (6) extends obliquely upwards from the inner side of the skirt (4) so that the axial extension of the inwards directed edge (7) of the catch (3) is substantially smaller than the axial extension at the inner side of the skirt.
2. A protective cap as claimed in claim 1, characterized in that the lower edge (6) of each catch (3) has a substantially concavely bent course or a course composed of rectilinear sections (6a, 6b).
3. A protective cap as claimed in claim 1 or 2, characterized in that the catches (3) are pairwise arranged in such a manner that the two catches of each pair converge against each other.
4. A protective cap according to claim 1, 2 or 3, characterized in that the top plate (1) in axial alignment with each of the catches (3) has a cut-out (2) extending to the edge of the top plate which at the inner edge of the cut-out is connected through a flexural hinge (10) with a sealing flap (9) that prior to the mounting is directed downwards towards the associated catch (3) but which by the mounting of the cap is urged upwards by the valve collar into a position in which it fills up the cut-out (2).

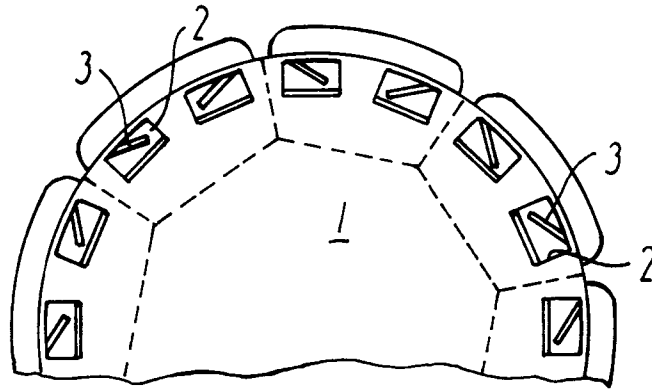


FIG. 1

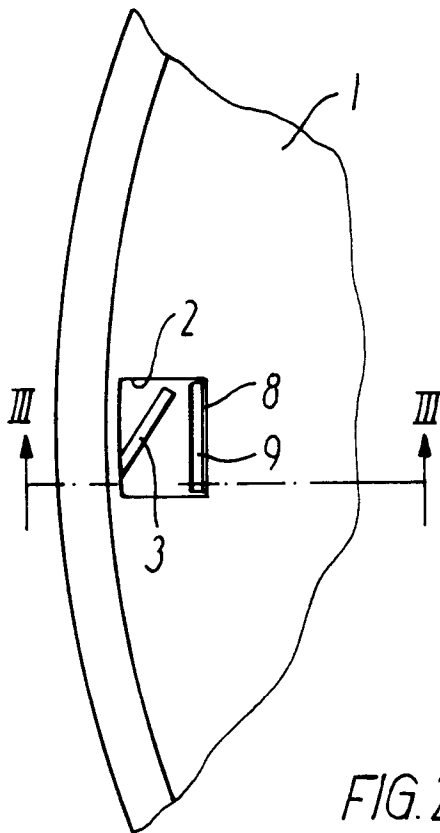


FIG. 2

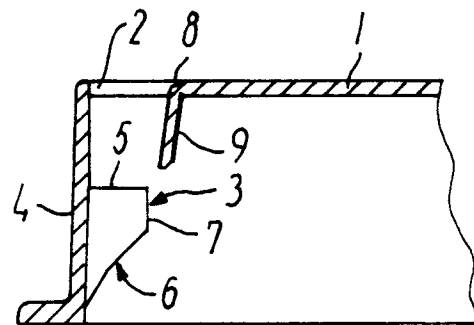


FIG. 3

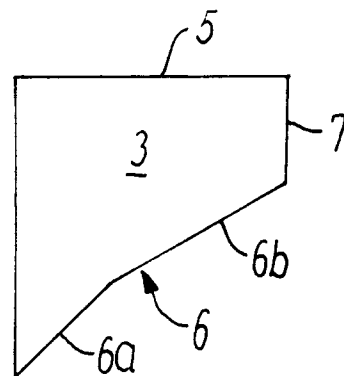


FIG. 4

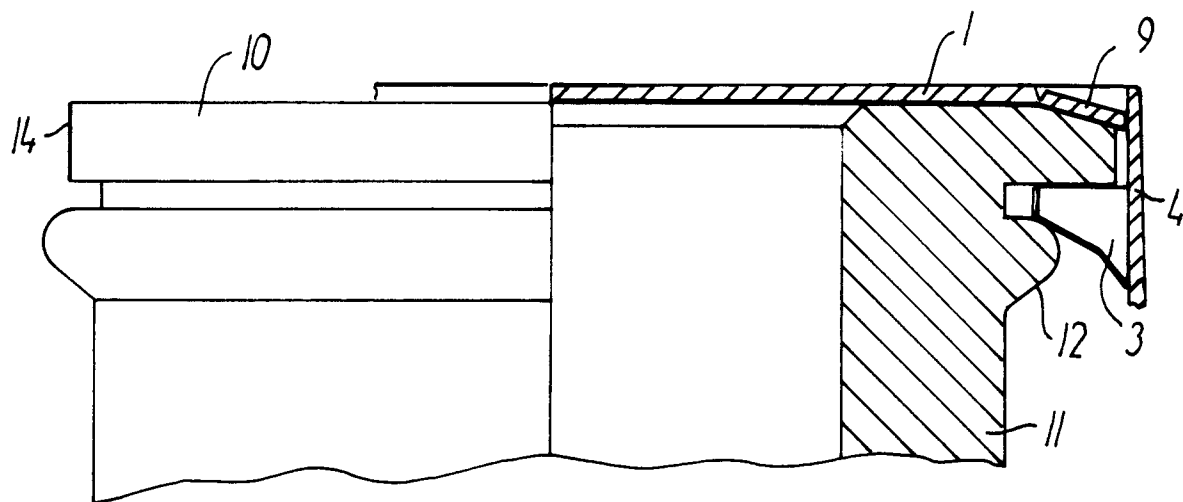


FIG. 5

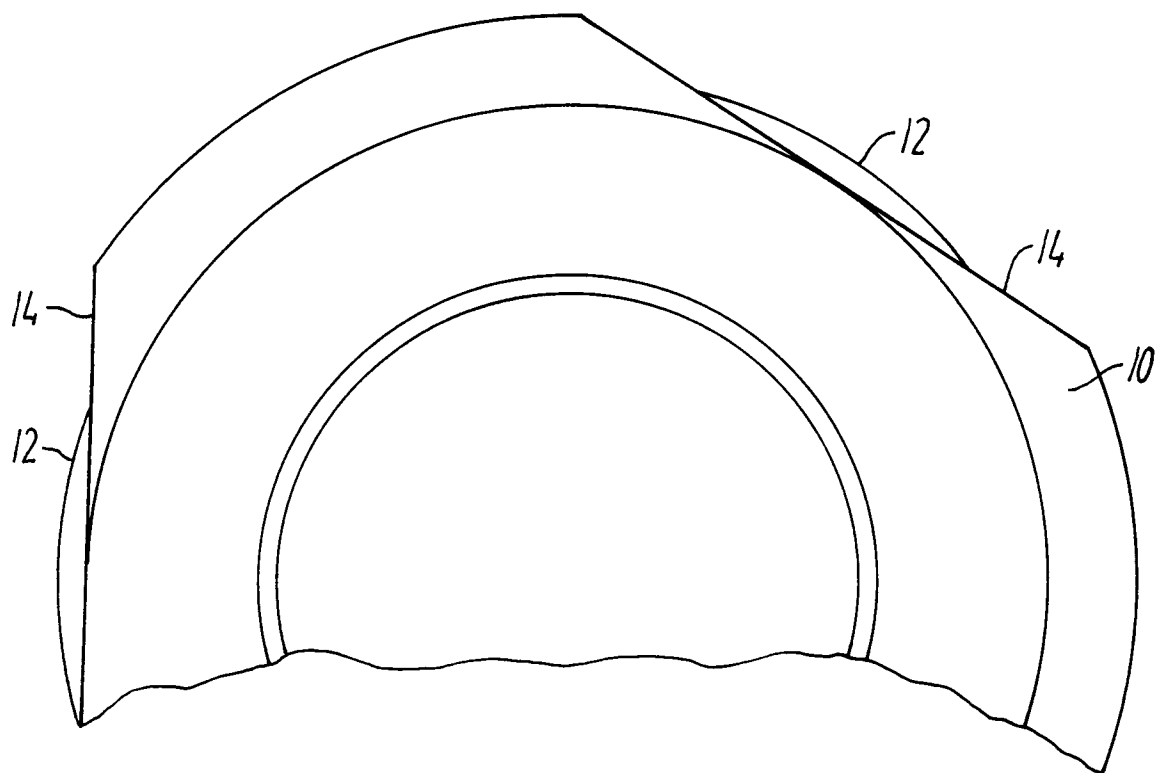


FIG. 6