

3

FIG. 2 is a section through the fuel tank cap of FIG. 1 shown in a closed position, the heart-shaped curve, which is disposed laterally at the piston, being additionally drawn in the center for greater clarity; and

FIG. 3 is an exploded view representative of the individual parts of the closing part of the locking gas cap of FIGS. 1 and 2.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

The inventive fuel tank cap comprises a locking gas cap 5, which is hinged either at the car body 1 or, as shown in the Figures, at an external expansion 2 of the tank connection pipe 3 with the help of a joint 4 and at the interior of which a closing part 6 is fastened which, by simply pressing the locking gas cap 5 shut, closes off the internally offset opening 7 of the tank connection pipe 3. By pressing the locking gas cap 5 shut, this closed position is also locked. In the same way, simply by pressing briefly on the locking gas cap 5, which is in the closed position shown in FIG. 2, unlocking takes place, so that the locking gas cap 5 simply springs open once again towards the outside.

In addition to the expansion 2, which is not absolutely essential in practice and would be dispensable if the locking gas cap 5 were hinged directly at the car body 1, the tank connection pipe 3 is provided with a cylindrical expansion 8, which is located at the outer end and in the bottom 9 of which, the opening 7, which is actually to be closed, is located. A piston 11 with a head part 12 is mounted axially displaceable in a casing 10, which is fastened rigidly to the locking gas cap 5. A spring 13 puts the piston under tension with respect to the locking gas cap. On the head part 12 of the piston 11, a gasket or also a simple ring seal 14 is placed which, during the closing of the locking gas cap 5, is seated on an edge shoulder 15 of the tank connection pipe 3 surrounding the opening 7 that is to be closed. Between the head part 12 of the piston 11 and the casing 10, a rubber elastic ring 16 is disposed, which is supported on the piston 11 and, when the locking gas cap is closed, is placed under tension between the head part 12 and the casing 10, so that it is pushed to the outside and engages a locking edge groove 17 of the cylindrical expansion 8 of the tank connection pipe 3, locking it (see FIG. 2). During this closing motion, the end 18 of a latching hook 19, which is mounted with its other end 20 at the casing 10, is shifted into a heart-shaped curve 21, as shown in FIG. 3 and, merely for the sake of greater clarity, also once again additionally is shown in FIG. 2 in the center of the piston. Starting out from the lower reversal point 22, the hook-shaped end 18 runs along one of the paths 23 of the heart-shaped curve 21 up to one of the arcs 24. If then the pressure on the locking gas cap 5 is released, the latter moves, due to the force of the spirally coiled spring 13 and also additionally due to the force of the compressed rubber elastic ring 16, a small distance towards the outside and, at the same time, latches under the central latching curvature 25 of the heart-shaped curve. In this position, displacement of the piston relative to the casing and locking gas cap is blocked, and the locking gas cap, together with the closing part 6, is locked as shown in FIG. 2. At the same time, the seal 14 is pressed tightly onto the shoulder 15 around the opening 7 of the tank connection pipe 3 that is to be closed off.

In order to open the locking gas cap, the latter is pushed a few millimeters inward against the force of the spring 13 and of the compressed rubber elastic ring 16, as a result of which the latching hook leaves its locking position and can

4

run back along one of the curves 23 of the heart-shaped curves into the outer latching position 22. This permits a correspondingly long axial displacement of the piston 11 relative to the casing 10, so that the rubber elastic ring can expand axially once again and, at the same time, retract radially from the locking edge groove 17. The lid springs open into the open position due to the force of the spring 13 and of the rubber elastic ring 16.

The invention is not limited to the examples shown. Aside from the possibility already addressed of mounting the cap at the car body and not directly at the outer flange of the tank connection pipe, the pushbutton locking device could also be constructed in a manner other than with the heart-shaped curve and latching hook shown, for example, in the manner of a clamping displacement mechanism of a ball point pen.

Having described preferred embodiments of the invention with reference to the accompanying drawings, it is to be understood that the invention is not limited to those precise embodiments, for example as noted above, and that various changes and modifications may be effected therein by one skilled in the art without departing from the scope or spirit of the invention as defined in the appended claims.

What is claimed is:

1. A fuel tank cap at the filler neck of a motor vehicle fuel tank, with a locking gas cap, which can be swiveled about a pivoting axis and a locking part, which is disposed internally at the locking gas cap and lies against the edge of the filler neck, sealing it, in the closed position, in which it can be locked and in which the locking gas cap is spring-loaded in the opening direction, it being possible to unlock the locking gas cap and swivel it into the open position by pressing down on it briefly especially by means of a robot-guided fuel pump nozzle, the opening of the tank connection pipe, which is to be closed off, is disposed offset towards the inside at the inner end of an essentially cylindrical expansion of the tank connection pipe and that, internally, at the locking gas cap, a casing is fastened, in which a piston, which is provided with a seal that is seated on the opening that is to be closed off, is mounted axially displaceable and which, when acted upon axially by pressure, forces a blocking element radially towards the outside into a locking edge groove of the cylindrical expansion of the tank connection pipe, the piston being mounted in the casing in the form of a pushbutton switch, which locks when depressed and releases once again when depressed once more, so that the casing with the locking gas cap moves to the outside relative to the piston and the blocking element is retracted from the locking groove.

2. The fuel tank cap of claim 1, wherein the blocking element is a stop sphere.

3. The fuel tank cap of claim 1, wherein the blocking element is a rubber elastic ring, which is mounted on the piston and is supported between the head of the piston, carrying the seal for the tank connection pipe, and the casing and which, when acted upon axially by pressure, after the piston is placed on the edge of the opening, is expanded radially and pressed into the edge locking groove.

4. The fuel tank cap of claim 1, wherein the mounting of the piston in the casing is constructed in the form of a clamping displacement mechanism of a ball point pen.

5. The fuel tank cap of claim 1, wherein a heart-shaped curve is disposed at the piston and engaged by one end of a latching hook, which is mounted with its other end at the casing.

6. A fuel tank cap for closing a filler neck of a fuel tank of a motor vehicle, comprising:

a tank connection pipe leading from the fuel tank to an opening to an exterior of the motor vehicle, said tank