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PROPERTY NUMBERS Total: 1

Property Type	Number
Application Number:	14602538

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DATE SIGNED:	01/22/2015
	This document serves as an Oath/Declaration (37 CFR 1.63).

Total Attachments: 25
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Docket No.: 75022

DECLARATION FOR PATENT APPLICATION AND ASSIGNMENT

Title of the Invention: DEVICE FOR PREVENTING THE INCORRECT FILLING OF A CONTAINER

As a below named inventor, I hereby declare that:

This declaration is directed to:

☒ The attached application, or

☐ United States application or PCT international application number _____ filed on _____.

The above-identified application was made or authorized to be made by me.

I believe that I am the original inventor or an original joint inventor of a claimed invention in the application.

WHEREAS, REUTTER GMBH,

(hereinafter referred to as Assignee) having a place of business at: Hans-Paul-Kaysser-Str. 10, 71397 Leutenbach, GERMANY

is desirous of acquiring the entire right, title and interest to said invention and in the Letters Patent to be obtained therefor from the United States;

NOW THEREFORE, be it known by all whom it may concern, that for and in consideration of the sum of One Dollar ($1.00) (or the equivalent thereof in foreign currency) and other valuable consideration, the receipt of which is hereby acknowledged, I have assigned, sold and set over and by these presents do assign, sell and set over unto the said Assignee for the territory of the United States of America and not elsewhere, the full and exclusive right, title and interest in and to the said invention, said invention, application and Letters Patent to be held and enjoyed by the said Assignee for its own use and behoof and for the use and behoof of its successors and assigns to the full end of the term for which said Letters Patent is granted, as fully and entirely as the same would have been held by me had this Assignment and sale not been made.

I hereby acknowledge that any willful false statement made in this declaration is punishable under 18 U.S.C. 1001 by fine or imprisonment of not more than (5) years, or both.

LEGAL NAME OF INVENTOR

INVENTOR: Felix SCHULZE

→Inventor's signature _____ →Date _____

Docket No.: 75022

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WHEREAS, REUTTER GMBH,

(hereinafter referred to as Assignee) having a place of business at: Hans-Paul-Kaysser-Str. 10, 71397 Leutenbach, GERMANY

is desirous of acquiring the entire right, title and interest to said invention and in the Letters Patent to be obtained therefor from the United States;

NOW THEREFORE, be it known by all whom it may concern, that for and in consideration of the sum of One Dollar ($1.00) (or the equivalent thereof in foreign currency) and other valuable consideration, the receipt of which is hereby acknowledged, I have assigned, sold and set over and by these presents do assign, sell and set over unto the said Assignee for the territory of the United States of America and not elsewhere, the full and exclusive right, title and interest in and to the said invention, said invention, application and Letters Patent to be held and enjoyed by the said Assignee for its own use and behoof and for the use and behoof of its successors and assigns to the full end of the term for which said Letters Patent is granted, as fully and entirely as the same would have been held by me had this Assignment and sale not been made.

I hereby acknowledge that any willful false statement made in this declaration is punishable under 18 U.S.C. 1001 by fine or imprisonment of not more than (5) years, or both.

LEGAL NAME OF INVENTOR

INVENTOR: Kurt WILFINGER

→Inventor's signature _____ →Date 7.1.2015

Docket #75022

DEVICE FOR PREVENTING THE INCORRECT FILLING OF A CONTAINER

CROSS REFERENCE TO RELATED APPLICATIONS

[0001] This application claims the benefit of priority under 35 U.S.C. § 119 of German Patent Application DE 10 2014 100 805.7 filed January 24, 2014, the entire contents of which are incorporated herein by reference.

FIELD OF THE INVENTION

[0002] The present invention pertains to a device for preventing the incorrect filling of a container, especially for motor vehicles, for example, an AdBlue® container, with a filler neck, into which the end of a fuel nozzle can be inserted, and a permanent magnet assembly formed by a first permanent magnet subassembly in the outlet pipe of the delivery nozzle and a second permanent magnet subassembly arranged on the filler neck, and the first permanent magnet subassembly can be arranged radially within the second permanent magnet subassembly when the fuel nozzle is inserted or the first permanent magnet subassembly can be arranged radially

outside the second permanent magnet subassembly when the fuel nozzle is inserted.

BACKGROUND OF THE INVENTION

[0003] AdBlue® (also called EEF, Diesel Exhaust Fluid), a urea-based liquid, is used for the exhaust gas treatment to reduce nitrogen oxides in automobile diesel engines. Since incorrect filling may occur due to an additional filler neck being provided next to the filler neck for the tank, devices for preventing the incorrect filling of the container for AdBlue® are known.

[0004] For example, a device for preventing the incorrect filling of a container of, for example, motor vehicles by means of a delivery nozzle is known from WO 2013/092109 A1, in which the device is provided with a permanent magnet assembly, which has a first permanent magnet subassembly, preferably in the form of an individual magnet in the outlet pipe of the delivery nozzle, wherein the permanent magnet assembly has an additional, second permanent magnet subassembly, which comprises either a plurality of permanent magnets arranged in an annular pattern or an individual magnet, which is arranged in the outlet pipe on the outer circumference of the outlet pipe in a radial alignment with the individual magnet of one subassembly, which said individual magnet acts as a switching magnet.

[0005] An assembly unit with a tightly seated ring magnet (NdFeB; remanence: 1.2T-1.3T; coercive field strength 800 kA/m – 900 kA/m), which magnet is used to activate a switching magnet of an AdBlue® nozzle when the filler neck is inserted, is correspondingly used in a filler neck known through use.

[0006] A device for preventing the incorrect filling of a container, which has permanent magnets, which are arranged in the outlet pipe of the delivery nozzle and are not movable or are only minimally movable in their mount and which interact during the insertion of the delivery nozzle, is known from EP 2 687 479 A1.

[0007] DE 10 2004 007 025 A1 discloses a rotatable permanent magnet for indication purposes (type of fuel). The system comprises a magnet ring, which is arranged on the pump nozzle, as well as a magnetic relay and an analysis unit, which is coupled with the magnetic relay and with an optical or acoustic signal transmitter, which are arranged on the tank cap. The magnetic relays, which can close or open a circuit depending on the magnetic field of the pump nozzle, are able to distinguish diesel fuel pumps from gasoline fuel pumps in this manner. One variant can also distinguish different grades of fuel of one type, e.g., regular gasoline from premium grade gasoline. It has a plurality of magnetic relays, which are arranged at different points. When the pump nozzle is approaching the tank cap opening, the magnets in the relays become aligned and correspondingly close the circuits. It is only when the correct magnetic field code is recognized that no alarm is triggered or the closing mechanism is not activated. The magnetic sensor may be arranged here movably or rotatably in a capsule, and it becomes aligned according to the polarity of the magnet of the pump nozzle and recognizes the type of fuel.

[0008] Such devices still leave something to be desired, especially in terms of costs.

SUMMARY OF THE INVENTION

[0009] A basic object of the present invention is therefore to improve such a device, especially also in terms of the manufacturing costs.

[0010] According to the invention, a device is provided for preventing the incorrect filling of a container. The device comprises a fuel delivery nozzle comprising an outlet pipe, a container filler neck, into which an end of the fuel nozzle is inserted and a permanent magnet assembly. The permanent magnet assembly comprises a first permanent magnet subassembly comprising an individual magnet. The first permanent magnet subassembly is on one of the outlet pipe of the delivery nozzle and the container filler neck. A second permanent magnet subassembly is provided comprising a plurality of permanent magnets arranged in an annular pattern. The second permanent magnet subassembly is arranged on the other of the outlet pipe of the delivery nozzle and the container filler neck. The first permanent magnet subassembly is arranged radially within the second permanent magnet subassembly when the fuel nozzle is inserted or the first permanent magnet subassembly is arranged radially outside the second permanent magnet subassembly when the fuel nozzle is inserted. The second permanent magnet subassembly is arranged entirely rotatable. The second permanent magnet subassembly is oriented corresponding to the first permanent magnet subassembly when the fuel nozzle is inserted.

[0011] The device according to the present invention provides for a rotatable arrangement

of the second permanent magnet subassembly in its entirety, so that the entire second permanent magnet subassembly becomes aligned corresponding to the first permanent magnet subassembly, which is arranged on the fuel nozzle, during the insertion of the fuel nozzle.

[0012] A first permanent magnet subassembly in the form of an individual magnet may correspondingly also be arranged at the filler neck and a second permanent magnet subassembly may be arranged on the fuel nozzle, and the entire second permanent magnet subassembly will in turn become aligned corresponding to the first permanent magnet subassembly.

[0013] Due to individual ring segments being used instead of a continuous magnetic ring, it becomes possible to save material and reduce the manufacturing costs as a result. Some weight reduction can be achieved as well.

[0014] In an especially preferred manner, the second permanent magnet subassembly comprises a plurality of individual permanent magnets, which are arranged freely movably in the circumferential direction in an annular gap. The possibility of free alignment increases the effectiveness, i.e., the closest permanent magnet of the second permanent magnet subassembly is attracted by the permanent magnet of the second permanent magnet subassembly, the permanent magnets of the second permanent magnet subassembly will become aligned correspondingly, and the two permanent magnets of both subassemblies, which said permanent magnets are positioned closest to one another, cause, supported by the optimized alignment in relation to one another, the delivery nozzle to be cleared when the fuel nozzle is positioned correctly in the filler neck.

[0015] The plurality of individual permanent magnets of the second permanent magnet subassembly is preferably arranged in the annular gap such that they are separated from one another and are located at spaced locations from one another by air gaps. It is also possible, in principle, to use spacers, but they are already kept at spaced locations from one another by the repulsive forces of adjacent permanent magnets because of the repulsed forces between the identically aligned permanent magnets of the second permanent magnet subassembly and are positioned essentially equidistantly in the annular gap. If one of the permanent magnets is moved, the others will become automatically aligned correspondingly.

[0016] The permanent magnets of the second permanent magnet subassembly preferably have the shape of ring segments, whose cross section is adapted to that of the annular gap. To avoid a possible jamming in the annular gap, the permanent magnets are preferably rounded somewhat on their edges.

[0017] Good ability of the second permanent magnet subassembly to function is achieved in case of three to eight permanent magnets designed as mutually separate permanent magnets; the number of permanent magnets especially preferably ranges from three to four.

[0018] The permanent magnets of the second permanent magnet subassembly especially preferably account, in their entirety, for between 80° and 240° of a full circle, but every individual permanent magnet has an angle range of at least 20 °. This leads to good material savings along

with optimal ability to function, in conjunction with a certain weight reduction.

[0019] The permanent magnets are preferably high-performance magnets made of neodymium (NdFeB; remanence: 1.27-1.3T; coercive field strength 800 kA/m – 900 kA/m).

[0020] To avoid or at least absorb noises, especially during travel, the permanent magnets are preferably surrounded by absorbent material, which forms a kind of buffer and absorbs the impact of the permanent magnets on one another and/or the impact of the permanent magnets on a wall surface of the annular gap, in which the permanent magnets are arranged movably.

[0021] As an alternative or combined herewith, springs, which prevent or at least absorb impact noises of the permanent magnets, are arranged between the permanent magnets.

[0022] As an alternative, an absorbent fluid, which absorbs the impact of the permanent magnets on one another or the noises generated during their motion, may also be provided in the annular gap.

[0023] Further, the device advantageously comprises a closing cap, which is used to close the filler neck, and which contains at least one magnetizable or magnetic element, which interacts with the permanent magnets of the second permanent magnet subassembly and limits the mobility thereof when the closing cap is placed on the filler neck. Noises, which are generated by a displacement of the permanent magnet movable in the annular gap and possibly

by the these permanent magnets coming into contact with one another, are avoided with certainty by the "fixation" of said permanent magnets movable in the annular gap.

[0024] The use of the device is not, of course, limited to devices for preventing an incorrect filling of an AdBlue® container, but the device according to the present invention may also be used for any other desired containers or tanks.

[0025] The present invention will be explained in more detail below on the basis of an exemplary embodiment with variants, partly with reference to the attached drawings. The various features of novelty which characterize the invention are pointed out with particularity in the claims annexed to and forming a part of this disclosure. For a better understanding of the invention, its operating advantages and specific objects attained by its uses, reference is made to the accompanying drawings and descriptive matter in which preferred embodiments of the invention are illustrated.

BRIEF DESCRIPTION OF THE DRAWINGS

[0026] In the drawings:

[0027] Figure 1a is a perspective exploded view of a part of the device according to the present invention according to the exemplary embodiment;

[0028] Figure 1b is another perspective view of a part of Figure 1a;

[0029] Figure 1c is a top view of the part of Figure 1a;

[0030] Figure 1d is a schematic longitudinal section through both parts of the device according to the present invention;

[0031] Figure 1e is a longitudinal section through the part of Figure 1a;

[0032] Figure 2a is a perspective view of a permanent magnet;

[0033] Figure 2b is a top view of the permanent magnet from Figure 2a;

[0034] Figure 2c is a side view of the permanent magnet from Figure 2a;

[0035] Figure 2d is a perspective view of a magnet holder;

[0036] Figure 2e is a perspective view of a magnet guide;

[0037] Figure 3a is a perspective view of a permanent magnet according to a first low-noise variant;

[0038] Figure 3b is a top view of the permanent magnet from Figure 3a;

[0039] Figure 3c is a top view of the permanent magnet according to a variant of the first low-noise variant;

[0040] Figure 3d is a schematic top view of a permanent magnet assembly according to a second low-noise variant;

[0041] Figure 3e is a schematic top view of a permanent magnet assembly according to a third low-noise variant; and

[0042] Figure 3f is a schematic cut-away view of a closing cap according to a fourth low-noise variant.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

[0043] Referring to the drawings, a device 1 for preventing the incorrect filling of a container, not shown more specifically in the drawing, here of an AdBlue® container of a motor vehicle, with a filler neck 2 that can be closed by means of a closing cap 10, comprises:

- a fuel nozzle 3 with a delivery nozzle, which delivery nozzle has an outlet pipe, and
- the container with filler neck 2, into which the end of the fuel nozzle 3 can be inserted for filling the container.

[0044] The fuel nozzle 3 has a first permanent magnet subassembly 4, which is known

per se in the form of an individual magnet 4' in the outlet pipe of the delivery nozzle. The individual magnet 4' acts as a switching magnet here and is arranged on the outer circumference of the outlet pipe. According to ISO 22241-4:2009(E), the individual magnet 4' is oriented in the fuel nozzle 3 such that its north pole points in the direction of the container (cf. schematic view in Figure 1d).

[0045] The filler neck 2 has a multipart design, and it is rigidly connected with the container in a manner known per se. It has a magnet bracket 5 with a magnet guide 6 connected therewith by means of ultrasonic welding, which form an outwardly closed annular gap 7, i.e., the annular gap is sealed against the surrounding area and especially against AdBlue®. A second permanent magnet subassembly 8 in the form of a plurality of individual permanent magnets 8', which are arranged displaceably in the circumferential direction of the annular gap 7 and interact with the first permanent magnet subassembly 4 during the insertion of the fuel nozzle 3, is arranged in the annular gap 7. The permanent magnets 8' are oriented for this axially such that their south pole points in the direction of the container and the north pole to the outside.

[0046] The permanent magnets 8' are designed as ring segments, as is shown in Figures 3a-c. Their dimensions in this case are: Radius 12 mm, thickness of the ring segment 5 mm, height of the ring segment 10 mm, angle range 31.5°. Four permanent magnets 8' are arranged here with a slight clearance and displaceably with the smoothest possible running within the annular gap 7, and each permanent magnet 8' occupies a partial area of 31.5° only in this case. Since the individual permanent magnets 8' are located equidistantly in the annular gap 7 because

of their repulsive forces as a consequence of the identical pole orientation, a distance of about 58.5° is obtained between the individual permanent magnets 8'.

[0047] Both the individual magnet 4' and the individual permanent magnets 8' consist of NdFeB in this case.

[0048] During the use of the device 1, the fuel nozzle 3 is inserted into the filler neck 2. Due to the insertion of the fuel nozzle 3, the first permanent magnet subassembly 4 reaches approximately the level of the second permanent magnet subassembly 8, as a result of which the permanent magnet 8' located closest to the individual magnet 4' is attracted by the individual magnet 4' and becomes aligned at a corresponding point in the annular gap 7. The distance between the two magnets located closet, i.e., between the individual magnet 4' and the permanent magnet 8' located closest, decreases, and the force acting on the individual magnet 4' thus increases as well. The other three permanent magnets 8' present in this case are aligned corresponding to the permanent magnet 8' attracted by the individual magnet 4'. The individual magnet 4' is activated because of the magnetic forces of the second permanent magnet subassembly 8 in the manner known per se, and the circuit clears the delivery nozzle, so that AdBlue® can be filled into the container. A corresponding deactivation, i.e., switching off of the delivery nozzle takes place when the fuel nozzle 3 is removed.

[0049] According to a first variant, not shown in the drawings, only three permanent magnets 8' are provided instead of the four permanent magnets 8' of the exemplary embodiment.

The rest of the design, also the dimensions of the annular gap and the cross section of the permanent magnet, correspond to those of the first exemplary embodiment, so that this will not be dealt with more specifically below. The three permanent magnets amount to 120° of a full circle in this case, i.e., each permanent magnet extends over an angle range of 60°. A distance of 120° is thus obtained in the annular gap between adjacent permanent magnets in case of equidistant alignment.

[0050] A second variant, likewise not shown in the drawings, provides for six permanent magnets, which are each half the size of the permanent magnets of the first variant, i.e., they extend over an angle range of 30° each, so that a distance of 60° is obtained between adjacent permanent magnets in the annular gap. The advantage of this arrangement is that in case of correct alignment of the permanent magnets used, the provision of an additional permanent magnet, for example, because of an assembly error, does not compromise the ability to function.

[0051] To avoid the generation of noise in the second permanent magnet subassembly 8, which is mounted rotatably in the filler neck 2 and comprises said plurality of permanent magnets 8' arranged in an angular pattern, the permanent magnets 8' are surrounded at least partially by absorbing material according to a first low-noise variant. The permanent magnets 8' and/or the guideways of the annular gap 7 are provided, e.g., coated or bonded, with absorbing material on all relevant surfaces in order to reduce the noise generated by mutual impacts or the impact on the wall of the guideway as much as possible. The suitable absorbing materials are elastic materials which absorb impacts due to a change in volume or local elastic deformation,

for example, foam or cellular rubber, but which fully regain their original shape after the end of the action of the force at the latest.

[0052] A coating over part of the surface of the permanent magnets 8' is provided, for example, as a first low-noise variant in Figures 3a and 3b, in which the buffers 11 have an essentially constant thickness.

[0053] According to a variant of the first low-noise variant shown in Figure 3c, sponge-like buffers 11 are provided on one end face of the permanent magnets 8' only, the buffers 11 being arranged on the possible contact surfaces of the permanent magnets 8' only, and it is ensured by the orientation that two buffers 11 will not come into contact with one another.

[0054] According to a second low-noise variant, which can also be combined with the first low-noise variant, springs 12 or elastic elements (e.gf., rubber buffers or springs), which prevent the permanent magnets 8' from colliding with one another and causing noise because of the collision with one another, are provided between the individual permanent magnets 8'.

[0055] As an example, four permanent magnets 8', between which four springs 12, which are shown at spaced locations from the permanent magnets 8' in the figure, are provided in Figure 3d. Contrary to the highly schematic view, the springs may, however, also be designed such that they can always be in contact with the permanent magnets 8'. Further, it is also possible to provide more permanent magnets 8' and correspondingly more springs 12. The permanent

magnets 8' may likewise have a shape corresponding to the view in Figure 1a.

[0056] An absorbing fluid 13 is provided in the annular gap 7 as a third low-noise variant. A lubricant (e.g., oil or grease), which allows the permanent magnets 8' to have good mobility but prevents an impact with the guideway or with adjacent permanent magnets 8' or decelerates the motion shortly before the impact to such an extent that the collision will hardly generate any noise, is located between the individual permanent magnets 8' and especially between permanent magnets 8' and the guideway of the annular gap 7 according to this variant. The view in Figure 3a is highly schematic in this case as well, i.e., the individual permanent magnets 8' may have, for example, the shape of the permanent magnets 8' from Figure 1a.

[0057] According to a fourth low-noise variant, at least one magnetic or magnetizable element, in this case a magnetic body 14, is provided in the closing cap 10 in order to ensure that the permanent magnets 8' will not move during travel, during which the closing cap 10 is normally placed on the filler neck 2. To prevent noise from being generated by the motion of the individual segments, metallic elements are inserted into the closing cap 10 of the filler neck 2. The action of the force originating from the segments is so strong that, when firmly tightened with the tank cap screwed on, they cannot move.

[0058] While specific embodiments of the invention have been shown and described in detail to illustrate the application of the principles of the invention, it will be understood that the invention may be embodied otherwise without departing from such principles.

WHAT IS CLAIMED IS:

1. A device for preventing the incorrect filling of a container, the device comprising:

a fuel delivery nozzle comprising an outlet pipe;

a container filler neck, into which an end of the fuel nozzle is inserted; and

a permanent magnet assembly comprising:

a first permanent magnet subassembly comprising an individual magnet, the first permanent magnet subassembly being on one of the outlet pipe of the delivery nozzle and the container filler neck;

a second permanent magnet subassembly comprising a plurality of permanent magnets arranged in an annular pattern, the second permanent magnet subassembly being arranged on another of the outlet pipe of the delivery nozzle and the container filler neck, whereby the first permanent magnet subassembly is arranged radially within the second permanent magnet subassembly when the fuel nozzle is inserted or the first permanent magnet subassembly is arranged radially outside the second permanent magnet subassembly when the fuel nozzle is inserted, wherein:

the second permanent magnet subassembly is arranged entirely rotatable; and

the second permanent magnet subassembly is oriented corresponding to the first permanent magnet subassembly when the fuel nozzle is inserted.

2. A device in accordance with claim 1, wherein the second permanent magnet subassembly comprises a plurality of individual permanent magnets, which are arranged freely

movably in the circumferential direction in an annular gap of the on the other of the outlet pipe of the delivery nozzle and the container filler neck.

3. A device in accordance with claim 2, wherein the plurality of individual permanent magnets of the second permanent magnet subassembly are arranged separated from one another and are located at spaced locations from one another, spaced apart by air gaps.

4. A device in accordance with claim 1, wherein the permanent magnets of the second permanent magnet subassembly have the shape of ring segments.

5. A device in accordance with claim 1, wherein the second permanent magnet subassembly is comprised of three to eight permanent magnets formed separately from one another.

6. A device in accordance with claim 5, wherein the second permanent magnet subassembly is comprised of three to four permanent magnets.

7. A device in accordance with claim 1, wherein the permanent magnets of the second permanent magnet subassembly occupy, in an entirety, 80º-240º of a full circle, wherein each individual permanent magnet has an angle range of at least 20º.

8. A device in accordance with claim 7, wherein the permanent magnets of the second

permanent magnet subassembly occupy 100°-200° of a full circle.

9. A device in accordance with claim 1, wherein the permanent magnets of the second permanent magnet subassembly are high-performance NdFeB magnets.

10. A device in accordance with claim 2, wherein the permanent magnets of the second permanent magnet subassembly are surrounded at least partially by absorbing material, which forms a buffer between the individual permanent magnets and/or wall surfaces of the annular gap.

11. A device in accordance with claim 10, wherein the permanent magnets an area provided with absorbing material on at least one of the two lateral surfaces, which can come into contact with the two adjacent permanent magnets.

12. A device in accordance with claim 10, wherein the sliding surfaces of the annular gap are provided with absorbing material.

13. A device in accordance with claim 10, further comprising springs arranged between the permanent magnets of the second permanent magnet subassembly.

14. A device in accordance with claim 10, wherein an absorbing fluid is provided in the annular gap.

15. A device in accordance with claim 1, further comprising

a closing cap to close the filler neck comprising a magnetizable or magnetic element, which interacts with the permanent magnets of the second permanent magnet subassembly when the closing cap has been placed on the filler neck and limits the mobility of said permanent magnets.

16. A fluid container filing arrangement comprising:

a fuel delivery nozzle comprising an outlet pipe;

a container filler neck, into which an end of the fuel nozzle is inserted; and

a permanent magnet assembly comprising:

a first permanent magnet subassembly comprising an individual magnet, the first permanent magnet subassembly being on one of the outlet pipe of the delivery nozzle and the container filler neck;

a second permanent magnet subassembly comprising a plurality of permanent magnets arranged in an annular pattern, the second permanent magnet subassembly being arranged on another of the outlet pipe of the delivery nozzle and the container filler neck, whereby the first permanent magnet subassembly is arranged radially within the second permanent magnet subassembly when the fuel nozzle is inserted or the first permanent magnet subassembly is arranged radially outside the second permanent magnet subassembly when the fuel nozzle is inserted, wherein:

the second permanent magnet subassembly is disposed in an axial position corresponding

to an axial position of the first permanent magnet subassembly when the fuel nozzle is fully inserted into the container filler neck; and

the second permanent magnet subassembly is mounted to the other of the outlet pipe of the delivery nozzle and the container filler neck so as to be freely rotatable in a circumferential direction to align the entire second permanent magnet subassembly with the first permanent magnet subassembly when the fuel nozzle is fully inserted into the container filler neck.

17. A fluid container filing arrangement in accordance with claim 16, wherein the second permanent magnet subassembly comprises a plurality of individual permanent magnets, which are arranged freely movably in the circumferential direction in an annular gap of the container filler neck.

18. A fluid container filing arrangement in accordance with claim 17, wherein the permanent magnets of the second permanent magnet subassembly are surrounded at least partially by absorbing material, which forms a buffer between the individual permanent magnets and/or wall surfaces of the annular gap.

19. A fluid container filing arrangement in accordance with claim 17, further comprising springs arranged between the permanent magnets of the second permanent magnet subassembly.

20. A fluid container filing arrangement in accordance with claim 16, further comprising a closing cap to close the filler neck comprising a magnetizable or magnetic element,

which interacts with the permanent magnets of the second permanent magnet subassembly when the closing cap has been placed on the filler neck and limits the mobility of said permanent magnets.

ABSTRACT OF THE DISCLOSURE

A device for preventing the incorrect filling of a container includes a fuel delivery nozzle with an outlet pipe, a container filler neck, into which an end of the fuel nozzle is inserted and a permanent magnet assembly. The magnet assembly includes a first permanent magnet subassembly, with an individual magnet, on one of the outlet pipe and the filler neck and a second permanent magnet subassembly with a plurality of permanent magnets arranged in an annular pattern. The second permanent magnet subassembly is arranged on another of the outlet pipe and the filler neck whereby the first permanent magnet subassembly is arranged radially within the second permanent magnet subassembly, or vice versa, when the fuel nozzle is inserted. The second permanent magnet subassembly is arranged entirely rotatable and is oriented corresponding to the first permanent magnet subassembly when the fuel nozzle is inserted.

APPENDIX:

List of Reference Numbers

1	Device
2	Filler neck
3	Fuel nozzle
4	First permanent magnet subassembly
4’	Individual magnet
5	Magnet holder
6	Magnet guide
7	Annular gap
8	Second permanent magnet subassembly
8’	Permanent magnet
10	Closing cap
11	Buffer
12	Springs
13	Absorbing fluid
14	Magnetic body