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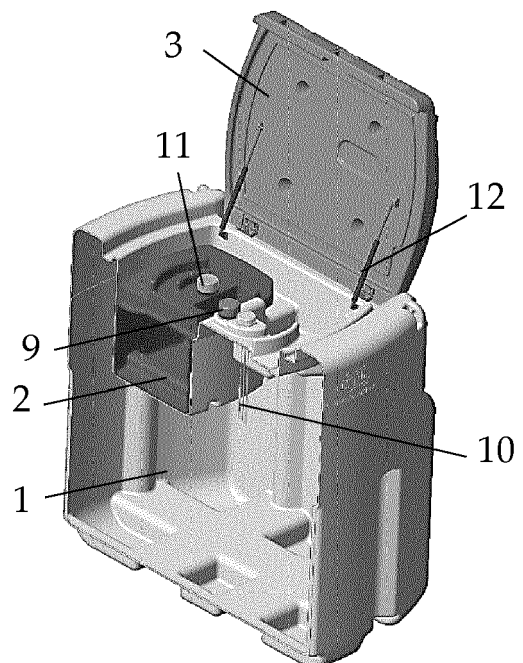
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(54) **A PORTABLE TANK FOR STORING AND TRANSPORTING DIESEL FUEL AND ADBLUE**

(57) A portable tank for storing and transporting diesel fuel and AdBlue characterised in that the shell of the tank (1) for direct storing and transporting diesel fuel has on its outer surface a profiled recess in which there is mounted a container (2) for direct storing and transporting AdBlue, where each of the containers comprises a separate inlet and filling installation situated in the upper part of the respective container, wherein the inlet installation of the container (1) for diesel fuel consists of an inlet cap (9) and a level sensor (10), while the filling installation consists of a dispensing pump (4) and a connected thereto dispensing hose (5) with a dispensing nozzle (6), whereas the inlet installation of the container (2) for AdBlue consists of an inlet cap (11) while the filling installation is equipped with a dispensing hose (7) with a dispensing nozzle (8), and with a submersible pump.



**Fig. 3**

## Description

**[0001]** The present invention concerns a portable tank for storing and transporting diesel fuel and AdBlue.

**[0002]** The increasingly stringent emission standards for combustion engines fitted in trucks, passenger cars, agricultural machinery, industrial machinery and other vehicles force engine manufacturers to use additional exhaust after-treatment systems. In diesel engines, emissions of particulate matter and nitrogen oxides have been drastically reduced.

**[0003]** In order to comply with the Stage IIIB (American Tier 4 Interim) standards for industrial and agricultural machinery as well as Euro 5 for passenger cars and trucks, manufacturers of machines fitted with diesel engines began to use a purified aqueous urea solution made with 32.5% urea, known under the trade name AdBlue, in order to reduce emissions of nitrogen oxides. Since 2014, after the introduction of new exhaust emission standards, such as Stage IV (American Tier 4 Final) for industrial and agricultural machinery, and Euro 6 for passenger cars and trucks, after further reducing emissions of nitrogen oxides (by almost 8-fold) virtually all manufacturers of diesel engines (except very small capacities) have been using exhaust after-treatment systems based on AdBlue. This implies the necessity to provide diesel machine and vehicle users with additional capacity for storing and transporting this product. Hence, of great importance are containers that would make it possible to store and transport both diesel and AdBlue.

**[0004]** From the description of the patent application WO2017175131, there is known a design of a tank designed to transport diesel fuel and an aqueous solution of high-purity urea, generally known by the commercial name of AdBlue, characterised in that it consists of two chambers where the first chamber is a container for diesel while the second chamber is provided with a seat in which the second container for AdBlue is inserted in a removable manner. The operation of the tank consists in that the first chamber being the first container and the second container are separately filled with diesel fuel and AdBlue, respectively, and then the second container is inserted 'head down' into the seat of the second chamber of the tank. When the tank reaches the destination, e.g. the place where a tractor is working, the user opens the lid and by means of for example a pump fills a tank mounted on the tractor with the content of the first container. Afterwards, the operator extracts the second container (with AdBlue) from the seat in the chamber by pulling the handle, overturns it so that the filling opening is at the top of the container and connects the pump to the opening to fill the AdBlue tank with which the tractor is equipped.

**[0005]** Thus, in the tank for transporting diesel fuel and AdBlue according to this design there is no option to fill or empty the second container without taking it out of the tank.

**[0006]** The purpose of the solution according to the

invention is to develop a tank that makes it possible to store and transport both diesel fuel and AdBlue at the same time, comprising two mutually attached containers that enable storing and transporting as well as dispensing products contained therein.

**[0007]** A portable tank for storing and transporting diesel fuel and AdBlue whose inside forms a container for direct storing and transporting diesel fuel and a container for direct storing and transporting AdBlue and in the upper part of the tank there is mounted a lid characterised in that the shell of the tank for direct storing and transporting diesel fuel has on its outer surface a profiled recess in which there is mounted a container for direct storing and transporting AdBlue, where each of the containers comprises a separate inlet and filling installation situated in the upper part of the respective container.

**[0008]** The inlet installation of the container for diesel fuel consists of an inlet cap and a level sensor while the filling installation consists of a dispensing pump and a connected thereto dispensing hose with a dispensing nozzle.

**[0009]** The inlet installation of the container for AdBlue consists of an inlet cap while the filling installation is equipped with a dispensing hose with a dispensing nozzle, and with a submersible pump.

**[0010]** It is preferable that in the coupling between the lid and the container there are mounted safety locks in the form of gas springs or in the form of a magnet attached to the tank shell and a metal plate attached to the lid.

**[0011]** The solution according to the invention facilitates storing and daily filling of containers in vehicles and machines which need to be refilled with diesel fuel and AdBlue.

**[0012]** An embodiment of the invention has been shown in the attached drawing in which Fig. 1 presents an axonometric view of the tank with the lid open; Fig. 2 presents a top view of the tank with the lid open; Fig. 3 presents an axonometric cross-section along the x-axis of the tank with the lid open (without the filling installation); Fig. 4 presents a cross-section along the y-axis of the tank with the lid open with the security lock in the form of a magnet attached to the shell of the tank for diesel fuel and a metal plate attached to the lid; Fig. 5 presents a magnified view of the security lock in the form of a magnet attached to the shell of the tank for diesel fuel and a metal plate attached to the lid.

**[0013]** The portable tank for storing and transporting diesel fuel and AdBlue consists of a container 1 for storing and transporting diesel fuel whose shell has in its outer part a profiled recess in which there is mounted in a permanent manner a container 2 for storing and transporting AdBlue where the whole is closed with a lid 3.

**[0014]** Each of the containers comprises a separate inlet and filling installation situated in the upper part of the respective containers where container 1 is equipped with a dispensing pump 4 and a connected thereto dispensing hose 5 with a dispensing nozzle 6 and container 2 is equipped with a dispensing hose 7 with a dispensing

nozzle 8 and a submersible pump, not shown in the drawing. Furthermore, container 1 is equipped with an inlet cap 9 and a level sensor 10 and container 2 is equipped with an inlet cap 11.

**[0015]** In the coupling between the lid 3 and the container 1 there are mounted safety locks preventing accidental opening of the lid 3; in the basic variant of the embodiment of the tank these are gas springs 12 and in the other variant of the embodiment it is a lock using magnetic field and comprising a magnet 13 attached to the lid of the shell of the external container and a metal plate 14 attached to the lid 3.

## Claims

1. A portable tank for storing and transporting diesel fuel and AdBlue whose inside forms a container for direct storing and transporting diesel fuel and a container for direct storing and transporting AdBlue and in the upper part of the tank there is mounted a lid **characterised in that** the shell of the tank (1) for direct storing and transporting diesel fuel has on its outer surface a profiled recess in which there is mounted a container (2) for direct storing and transporting AdBlue, where each of the containers comprises a separate inlet and filling installation situated in the upper part of the respective container, wherein the inlet installation of the container (1) for diesel fuel consists of an inlet cap (9) and a level sensor (10), while the filling installation consists of a dispensing pump (4) and a connected thereto dispensing hose (5) with a dispensing nozzle (6), whereas the inlet installation of the container (2) for AdBlue consists of an inlet cap (11) while the filling installation is equipped with a dispensing hose (7) with a dispensing nozzle (8), and with a submersible pump.
2. The portable tank according to claim 1 **characterized in that** in the coupling between the lid (3) and the container (1) there are mounted safety locks in the form of a magnet (13) attached to the tank shell (1) and a metal plate (14) attached to the lid (3).

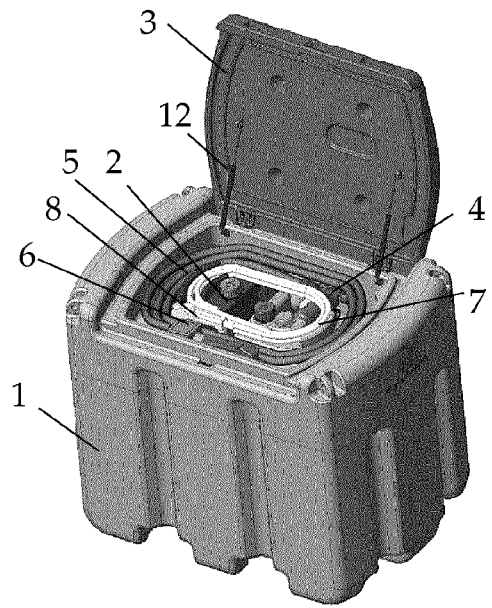
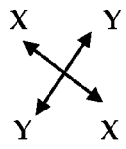


Fig. 1

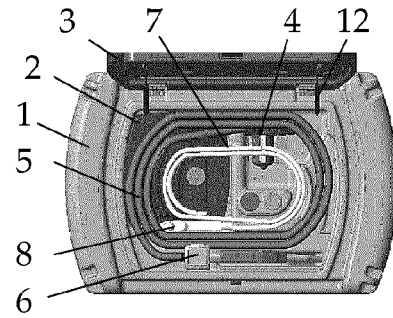


Fig. 2

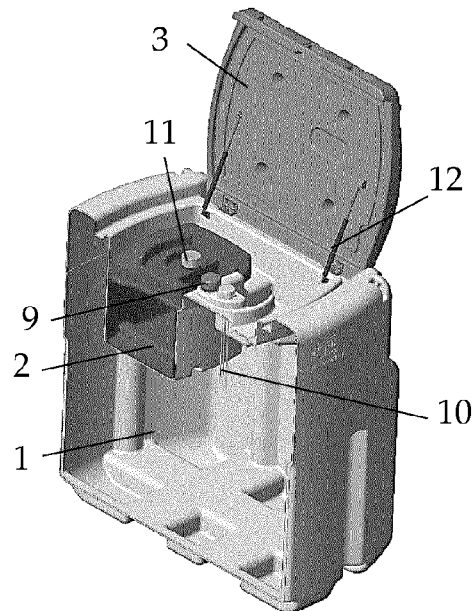


Fig. 3

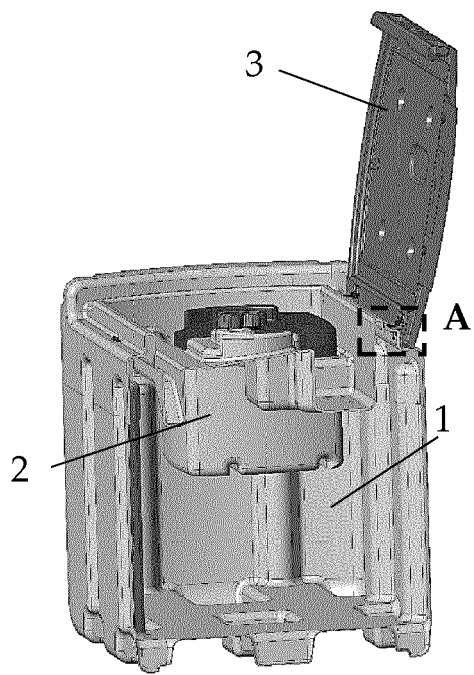


Fig. 4

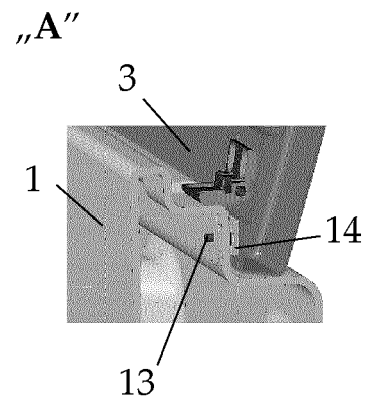


Fig. 5



## EUROPEAN SEARCH REPORT

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 EP 19 18 2118

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The present search report has been drawn up for all claims			
Place of search Munich		Date of completion of the search 22 November 2019	Examiner Schultz, Tom
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document		T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons ----- & : member of the same patent family, corresponding document	

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