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- (73) Patenthaver: **ATERA GmbH, Im Herrach 1, 88299 Leutkirch im Allgäu, Tyskland**
- (72) Opfinder: **Raida, Hans-Joachim, Neuenkamper Weg 46a, 42799 Leichlingen, Tyskland**
- (74) Fuldmægtig i Danmark: **CHAS. HUDE A/S, Langebrogade 1, 2. B2, 1411 København K, Danmark**
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US-A1- 2016 010 818

Description

The invention relates to a cargo box according to the preamble of claim 1.

5 A cargo box of this type is known from EP 2 689 967 B1 and is provided in the form of a roof box for a motor vehicle. In the known roof box, the sensor device has an inclination sensor for detecting an opening angle between the lid shell and the base shell. The illumination device is activatable and/or deactivatable depending on the detected opening angle.

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A further cargo box in the form of a roof box is known from DE 20 2018 105 176 U1 and has a base shell and a lid shell. The base shell is anchored on a roof area of a passenger car in an assembled state ready for operation. The lid shell is swivelably mounted on the base shell and is movable relative to the base shell between a closed position and an open position. In the closed position, the lid shell rests on the base shell to enclose a transport volume. In the open position, the lid shell is lifted at least in some sections from the base shell to open the transport volume. The roof box furthermore has an illumination device arranged in the transport volume and configured for illumination thereof. A sensor device is also provided and configured to detect at least one detection variable. In the known roof box, the sensor device is configured to detect a movement inside the transport volume and has for that purpose a movement sensor arranged inside the roof box. Alternatively, the sensor device is configured to detect an acceleration of the lid shell. In the known roof box, a control device is also provided which is configured for activation and/or deactivation of the illumination device depending on the movement detected inside the roof box or on the acceleration of the lid shell. Here the illumination device should be activated whenever a movement or an acceleration is detected, as usually occurs in the event of a movement of the lid shell into the open position.

30 The object of the invention is to provide a cargo box of the previously mentioned type that has a simple design and permits energy-saving operation of the illumination device.

This object is achieved by a cargo box having the features of claim 1. The solution in

accordance with the invention can in particular allow a movement sensor and/or an acceleration sensor for activation and/or deactivation of the illumination device to be dispensed with. The invention is based here on the consideration that unwelcome activations of the illumination device can result both from the use of a movement sensor to detect a movement inside the transport volume and from the use of an acceleration sensor to detect the acceleration of the lid shell. This can for example be the case whenever an item arranged in the transport volume is moved or the lid shell is subjected to accelerations caused by the driving status. It cannot be readily determined here whether such a movement or such an acceleration is caused by the driving status or in fact by a movement of the lid shell between the closed and the open position. The result can thus be erroneous activations of the illumination device in the closed position of the lid shell, involving an unwelcome consumption of energy. Thanks to the solution in accordance with the invention, these erroneous activations and the energy consumption involved can be prevented. For that purpose, the sensor device has at least the first inclination sensor. The first inclination sensor detects the inclination of the lid shell in relation to the vertical direction. The vertical direction is the local direction of the gravity acceleration vector. Expressed differently, the first inclination sensor is configured for detecting the inclination of the lid shell in relation to a vertical reference direction. The inclination of the lid shell naturally changes in the event of a movement between the closed position and the open position. The detected inclination of the lid shell thus allows a direct conclusion to be drawn about a movement position of the lid shell relative to the base shell. The illumination device is preferably arranged on an inner face of the lid shell. The illumination device preferably has at least one illumination element. The at least one illumination element is preferably designed as an LED illumination element. The sensor device is preferably arranged on the lid shell. The first inclination sensor is preferably arranged on the lid shell, most preferably on an inner face of the lid shell. The first inclination sensor can be a mechanical or an electronic inclination sensor. The first inclination sensor is preferably designed in the form of an inclination switch. Inclination switches are in principle known as such and are configured to close and open a circuit depending on the detected inclination. If the first inclination sensor is designed as an inclination switch, it can be directly integrated into a circuit provided for supplying energy to the illumination device. The circuit can be opened and/or closed thereby in a simple manner depending on the detected inclination, and so the illumination device be deactivated and/or activated.

With a design of this type, in particular a separate control device to operate the illumination device depending on the detected inclination of the lid shell can advantageously be dispensed with. Alternatively, the first inclination sensor can be configured to emit at least one sensor signal depending on the detected inclination of the lid shell. The illumination device can be activatable and/or deactivatable depending on the sensor signal of the first inclination sensor. For that purpose, a control device connected to the first inclination sensor and to the illumination device is preferably provided which is configured to operate the illumination device at least depending on the sensor signal of the first inclination sensor.

The solution in accordance with the invention is suitable in a particularly advantageous way for a cargo box in the form of a roof box intended for mounting in the area of a vehicle roof. The solution in accordance with the invention can however also be used for a cargo box in the form of a hitch cargo box intended for fitting at the rear of a vehicle.

Also in accordance with the invention, the sensor device has a second inclination sensor configured to detect an inclination of the base shell in relation to the vertical direction, wherein the illumination device is activatable and/or deactivatable depending on the inclination of the lid shell and on the inclination of the base shell. With this embodiment of the invention, an erroneous activation and/or deactivation of the illumination device can be additionally counteracted. For that purpose, the activation and/or deactivation of the illumination device additionally depends on the inclination of the base shell detected by means of the second inclination sensor. The illumination device can for example be operated depending on a difference value between the inclination of the base shell and the inclination of the lid shell. Preferably, an appropriately configured control device connected to the first and second inclination sensor and to the illumination device is provided for that purpose. Alternatively, the first inclination sensor and the second inclination sensor can each be designed as inclination switches and connected in series to one another. The first inclination sensor can be designed here as an opening switch and the second inclination sensor as a closing switch, or vice versa. This embodiment of the invention prevents in particular the illumination device being activated during a joint inclination of the lid shell and base shell in the closed position. A joint inclination of this type can for example occur due to

the driving status as a result of a steep inclination of the motor vehicle or when the motor vehicle is parked on a steep incline. Furthermore, a joint inclination of this type can for example result when the cargo box is stored in an angled position when not in use and removed from the motor vehicle.

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In a further embodiment of the invention, the first inclination sensor and/or the second inclination sensor is designed in the form of a mechanical inclination switch. Mechanical inclination switches are in principle known as such. With this embodiment of the invention a particularly simple and sturdy design can be achieved. Mechanical
10 inclination switches also do not require any electric power supply, allowing particularly energy-saving operation.

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In a further embodiment of the invention, the first inclination sensor and/or the second inclination sensor is/are designed in the form of an electronic inclination switch. Electronic inclination switches are in principle known as such. With this embodiment of
the invention, a compact design can be achieved in particular and installation space can be saved.

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In a further embodiment of the invention, a further sensor device is provided which is configured to detect at least one further detection variable and which is activatable and/or deactivatable depending on the inclination of the lid shell detected by means of the sensor device and/or on the inclination of the base shell, wherein the illumination device is activatable and/or deactivatable depending on the further detection variable detected by means of the further sensor device. In this embodiment of the invention,
25 the illumination device is operated for activation and/or deactivation depending on the further detection variable detected by means of the further sensor device. The further sensor device is in turn activated and/or deactivated depending on the detected inclination of the lid shell and/or the detected inclination of the base shell. Operating energy can be saved by the further sensor device being activated only when required.

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Expressed in simplified form, operation of the illumination device is in two stages. The further detection variable can in particular be a movement inside the transport volume, a movement in the vicinity of the cargo box, an acceleration of the base shell or an acceleration of the lid shell. Accordingly, the further sensor device can have at least one movement sensor and/or acceleration sensor. This embodiment of the invention

enables in particular dependable and also energy-saving operation of the illumination device.

5 In a further embodiment of the invention, the further sensor device has at least one movement sensor configured to detect a movement inside the transport volume and/or a movement in the vicinity of the cargo box. This embodiment of the invention permits particularly dependable activation and/or deactivation of the illumination device and thus additionally counteracts any erroneous operation of the illumination device.

10 In a further embodiment of the invention, a rechargeable energy storage device is provided for supplying the illumination device and/or the sensor device and/or further sensor device with electrical operating energy. As a result, a further simplification of the design is achieved, as in particular a connection of the illumination device to an electrical system of the vehicle for energy supply can be dispensed with. The
15 rechargeable energy storage device has preferably at least one storage battery. The storage battery is preferably designed for non-destructive removal and is thus simple to replace when required.

In a further embodiment of the invention, an energy-harvesting device connected to
20 the energy storage device is provided that has at least one piezoelectrically acting piezoelement and/or a thermoelectrically acting thermocouple and is configured to generate electrical energy from a mechanical vibration and/or from a temperature difference. The energy-harvesting device is used for at least partial recharging of the energy storage device. As a result, an increased duration of use of the energy storage
25 device is achieved, and replacement of the energy storage device can be delayed or even completely avoided. To generate electric power the energy-harvesting device has the at least one piezoelement and/or the at least one thermocouple. Mechanical vibrations of the cargo box can be converted into electric energy by means of the piezoelement. Conversion of this type is achieved on the basis of generally known
30 physical correlations. The at least one piezoelement is preferably arranged on an inner face of the base shell and/or lid shell and firmly connected thereto. Electrical energy is generated by means of the thermocouple based on generally known physical correlations. The thermocouple is preferably designed in the form of a Peltier element.

In a further embodiment of the invention, a function module into which at least the illumination device and the sensor device are integrated is fastened to an inner face of the lid shell, preferably detachably. A further simplified and particularly compacter design can be achieved as a result. Preferably, the function module has a housing arrangement into which both the illumination device and the sensor device are integrated. Preferably, the function module is detachably fastened to the inner face of the lid shell. The detachable fastening ensures that the function module can be arranged and fastened on the inner face in a simple manner and in different positions depending on a loading state of the transport volume.

In a further embodiment of the invention, the rechargeable energy storage device and the energy-harvesting device are additionally integrated into the function module. A further simplified design can be achieved as a result.

Further advantages and features of the invention can be found in the claims and in the following description of preferred examples of the invention that are explained on the basis of the drawing.

Fig. 1 shows in a schematically greatly simplified representation an embodiment of a cargo box in accordance with the invention, in the form of a roof box wherein a lid shell of the roof box assumes an open position and individual parts and/or components of the roof box are illustrated in a heavily simplified form in the manner of a block diagram for easier reference,

Fig. 2 shows the roof box according to Fig. 1 in a schematic side view,

Fig. 3 shows a further embodiment of a roof box in accordance with the invention in a schematically simplified representation corresponding to Fig. 1, and

Fig. 4 shows a further embodiment of a roof box in accordance with the invention in a schematically simplified representation corresponding to Figs. 1 and 3.

In accordance with Fig. 1, a cargo box is provided in the form of a roof box 1 for a motor vehicle in the form of a passenger car not shown in detail in the drawing. The roof box 1 has a base shell 2, which in an assembled state ready for operation can be fastened in a generally known manner to a load carrier mounted on the roof of the passenger car. The roof box 1 also has a lid shell 3 which is swivelably mounted on the base shell 2 in a generally known manner. In this way, the lid shell 3 is movable relative to the base shell 2 between an open position shown in Fig. 1 and a closed position not shown in the drawing. In the closed position, the lid shell 3 rests on the base shell 2 to enclose a transport volume T. By contrast, the lid shell 3 is swiveled relative to the base shell 2 in the open position and hence lifted at least in some sections from the base shell 2. Accordingly, the transport volume T is opened in the open position. The open position serves to that extent for loading and unloading of the roof box 1, where items to be transported are placed into the transport volume T or are removed from it.

In the embodiment shown, the lid shell 3 is arranged swivelable about a swivel axis arranged on a right-hand side area – in relation to the drawing plane in Fig. 1 – of the base shell 2 and lid shell 3. Expressed differently, the roof box 1 is as a result openable at its left-hand longitudinal side. It is obvious that the roof box 1 can be designed to open on either of its longitudinal sides and hence also on its right-hand longitudinal side in a generally known manner. In this connection the lid shell 3 can be movable swivelably about a further swivel axis arranged in a left-hand side area of the base shell 2 and lid shell 3.

In the embodiment shown, the lid shell 3 is mounted swivelably on the base shell 2 between the closed and the open position in the manner previously described by means of hinge joints not shown in detail.

To ensure convenient loading and unloading of the roof box 1, an illumination device 4 is provided. The illumination device 4 is shown schematically in Fig. 1 in greatly simplified form and aside from the base and lid shells 2, 3 of the roof box 1. This is intended only to simplify drawing representation and make reference easier. The illumination device 4 is used to illuminate the transport volume T, thus enabling

convenient and safe loading and unloading of the roof box 1 in particular in dark ambient conditions.

In the embodiment shown, the illumination device 4 has an illumination element 5. The illumination element 5 is – in contrast to what might be inferred from the greatly simplified representation in Fig. 1 – arranged on an inner face of the lid shell 3, so that in an activated state of the illumination device 4 the transport volume T and hence the interior of the roof box 1 is lit up.

In the embodiment shown, the illumination element 5 is designed in the form of an LED lamp, thereby achieving a particularly energy-saving operation of the illumination device 4.

The roof box 1 also has a sensor device 6. The sensor device 6 is provided for controlled activation and/or deactivation of the illumination device 4 and for that purpose operatively connected thereto. The sensor device 6 is configured in a manner described in detail to detect a detection variable in connection with the closed position and/or open position of the lid shell 3. Expressed differently, the sensor device 6 permits activation and deactivation of the illumination device 4 as required, depending on the closed and/or open position of the lid shell 3. The illumination device 4 and thus also the illumination element 5 are therefore activatable and/or deactivatable depending on the at least one detection variable detected by means of the sensor device 6, and hence depending on the closed and/or open position of the lid shell 3.

In the embodiment shown, the sensor device 6 has a first inclination sensor 7 configured to detect an inclination α of the lid shell 3 in relation to a vertical direction L.

The vertical direction L indicates in known manner the direction of the local gravity vector and is accordingly oriented vertically downwards. The first inclination sensor 7 is in the embodiment shown arranged on an inner face of the lid shell 3 and firmly connected to the lid shell 3. In the open position shown in Fig. 1, the inclination angle α of the lid shell 3 is approximately 45° . By contrast, the inclination angle α in the closed position, not shown, is approximately 0° .

It is obvious that the first inclination sensor does not necessarily have to be arranged

on the inner face of the lid shell. Accordingly, the first inclination sensor in an embodiment, not shown, is arranged on a hinge joint associated with the lid shell which ensures swivelability of the lid shell between the closed and the open position. In this embodiment, not shown, the inclination of the lid shell is thus detected indirectly by
5 detecting the inclination of the said hinge joint.

In the embodiment shown, the first inclination sensor 7 is designed in the form of an electronic inclination switch 8. Electronic inclination switches are in principle known as such and are configured to switch a circuit depending on the inclination detected. In
10 the present case a circuit, not shown in detail in the drawing, for powering the illumination device 4 and/or the illumination element 5 can as a result be switched by means of the electronic inclination switch 8 depending on the detected inclination α . In the embodiment shown, the electronic inclination switch 8 is configured such that switching takes place when an inclination α of 40° is achieved. It is obvious that this
15 value for the inclination α must be understood purely as an example and accordingly has dimensions diverging therefrom in an embodiment, not shown.

If the lid shell 3 is swiveled relative to the base shell 2 in the direction of the open position, starting from the closed position, the electronic inclination switch 8 closes the
20 circuit for energy supply to the illumination device 4 when the inclination α of 40° is reached, and the electronic inclination switch 8 opens the circuit correspondingly in the event of a movement of the lid shell 3 opposite thereto, in the direction of the closed position. This permits a simple activation and deactivation of the illumination device 4 as required, depending on the inclination α .

If the circuit for powering the illumination device 4 and/or the illumination element 5 and/or the sensor device 6 requires transmission of electrical energy between the base shell 2 and the lid shell 3, an electrical contact necessary to do so can be made
25 between the base shell 2 and the lid shell 3 via the previously described hinge joints. The hinge joints are for that purpose designed electrically conductive, so that separate electrical cabling in this area can be dispensed with.
30

A rechargeable energy storage device 9 is provided in the present case for supplying the illumination device 4 with electrical operating energy. The rechargeable energy

storage device 9 can also be configured for supplying energy to the sensor device 6. The energy storage device 9 is, in the embodiment shown, a storage battery of generally known design.

5 In an embodiment, not shown, a connection to an electrical system of the vehicle is provided for energy supply to the illumination device and/or to the sensor device instead of the rechargeable energy storage device.

10 In a further embodiment, not shown, a conventional non-rechargeable battery is provided instead of the rechargeable energy storage device.

To recharge the energy storage device 9, the roof box 1 also has an energy-harvesting device 10 in the embodiment shown. The energy-harvesting device 10 serves to generate electrical energy from the ambient background and in the present case has
15 a piezoelectrically acting piezoelement 11 for that purpose. Mechanical vibrations can be converted into electric energy by means of the piezoelement 11. The physical correlations determining this are generally known. The piezoelement 11 is in the present case – in contrast to what might be inferred from the greatly simplified representation in Fig. 1 – arranged on an inner face of the lid shell 3 and firmly
20 connected thereto. Mechanical vibrations of the lid shell 3 occurring while the motor vehicle is being driven can thus be converted by means of the piezoelement 11 into electrical energy for charging the energy storage device 9.

As shown in Fig. 2, the illumination device 4, the sensor device 6, the rechargeable
25 energy storage device 9 and the energy-harvesting device 10 are integrated into a function module F in the embodiment shown. The function module F is detachably fastened to an inner face of the lid shell 3. The function module F is shown schematically in heavily simplified form in Fig. 2 and has a housing arrangement, not shown in detail, into which the illumination device 4, the sensor device 6, the energy
30 storage device 9 and the energy-harvesting device 10 are integrated. The design achieved in this way is compact and in particular does not require fixed cabling to the lid shell 3 and/or base shell 2. As a result, the function module F can be fitted to and removed from the lid shell 3 in a simple manner.

Figs. 3 and 4 show further embodiments of roof boxes 1a, 1b in accordance with the invention. The embodiments according to Figs. 3 and 4 correspond substantially to the embodiment according to Figs. 1 and 2. To avoid repetition, the following addresses only the crucial differences. Components and/or sections of identical design and/or function are provided with identical reference numerals and are not explained separately. Instead, reference is made to the relevant disclosure in connection with the embodiment according to Figs. 1 and 2 applying in corresponding manner to the embodiments according to Figs. 3 and 4.

Unlike the roof box 1 according to Figs. 1 and 2, the roof box 1a according to Fig. 3 has a sensor device 6a with an additional second inclination sensor 12. The second inclination sensor 12 is configured to detect an inclination β of the base shell 2 in relation to the vertical direction L. The second inclination sensor 12 is arranged for that purpose on an inner face of the base shell 2 and firmly connected thereto. The illumination device 4 for activation and/or deactivation is thus operated in the present case not only depending on the inclination α of the lid shell 3 detected by means of the first inclination sensor 7; instead operation is additionally dependent on the inclination β of the base shell 2. This allows in particular the avoidance of unwelcome activations of the illumination device 4 in the case of a joint inclination of the base shell 2 and lid shell 3 in the closed position. A joint inclination of this type can for example occur as a result of a steep inclination of the motor vehicle while it is being driven or when it is parked.

The second inclination sensor 12 is in the present case designed identical to the first inclination sensor 7 and to that extent is an electronic inclination switch. The illumination device 5 is thus operated depending on the switching state of the first inclination sensor 7 and on the switching state of the second inclination sensor 12. A control device, not shown in detail, is provided in the embodiment shown for processing this switching state. The control device is associated with the sensor device 6a and is configured for activation and/or deactivation of the illumination device 4 depending on the switching states of the inclination sensors 7, 12 and hence on the inclinations α , β detected by means thereof. The control device is, expressed simply, configured here such that the illumination device 4 is activatable and/or deactivatable depending on a predetermined difference value between the inclination α of the lid shell 3 and the

inclination β of the base shell 2.

A further difference to the roof box 1 is that the roof box 1a according to Fig. 3 has a differently designed energy-harvesting device 10a. The energy-harvesting device 10a has a thermoelectrically acting thermocouple 13 instead of a piezoelement. By means of the thermocouple 13, electrical energy can be obtained from a prevailing temperature difference. The physical correlations determining this are generally known. The temperature difference can prevail either in the ambient air surrounding the roof box 1a or at components and/or sections of the roof box 1a itself.

Another difference to the roof box 1 is that the roof box 1a has a timer device Z by means of which the illumination device 4 can be automatically switched off when a predetermined switch-on duration is reached. The timer device Z can for that purpose be operatively connected to a circuit provided to supply power to the illumination device 4 and interrupt that circuit when the switch-on duration is reached.

The roof box 1b according to Fig. 4 differs substantially from the embodiments according to Figs. 1 to 3 in the presence of a further sensor device 14. The further sensor device 14 has at least one movement sensor 15 configured to detect a movement inside the transport volume T. The movement sensor 15 is to that end arranged on an inner face of the lid shell 3 and firmly connected thereto. The illumination device 4 is activatable and/or deactivatable depending on a movement detected by means of the movement sensor 15.

The further sensor device 14 and hence also the movement sensor 15 are powered in the present case by the rechargeable energy storage device 9.

To achieve the most energy-saving operation possible of the further sensor device 14, the latter is only activated and/or deactivated as required. Activation and/or deactivation in the present case depends on the inclination α of the lid shell 3 detected by means of the sensor device 6b.

Unlike the sensor devices 6, 6a, the sensor device 6b has a first inclination sensor 7b designed in the form of a mechanical inclination switch 16. Mechanical inclination

switches are in principle known as such. In the present case a circuit not shown in detail and provided to supply energy to the movement sensors 15 is opened and closed by means of the mechanical inclination switch 16 depending on the inclination α of the lid shell 3. The mechanical inclination switch 16 is configured here such that the power supply in the closed position is interrupted and is closed when a predetermined value of the inclination α is reached.

It is obvious that the features of the embodiments can be combined to obtain feature combinations not expressly described and/or shown in the drawing.

PATENTKRAV

1. Transportboks (1, 1a, 1b), navnlig en tagboks, til et motorkøretøj, med en basisskal (2), der er arrangeret fast på køretøjet i samlet tilstand, parat til drift; en
5 lågskal (3), monteret svingbart på basisskallen (2) og bevægelig i forhold til basisskallen (2) mellem en lukket tilstand, i hvilken lågskallen (3) hviler på basisskallen (2) for at omslutte et transportvolumen (T), og en åben position, i hvilken lågskallen (3) er løftet, i mindst nogle sektioner, fra basisskallen (2) for at åbne transportvoluminet (T); en belysningsindretning (4), konfigureret til at belyse
10 transportvoluminet (T) og med en sensorindretning (6, 6a, 6b) forbundet til belysningsindretningen (4) og konfigureret til at detektere mindst én detekteringsvariabel, hvilken belysningsindretning (4) kan aktiveres og/eller deaktiveres i afhængighed af den mindst ene detekteringsvariabel, som er detekteret ved hjælp af sensorindretningen (6, 6a, 6b), hvilken sensorindretning (6, 6a, 6b) omfatter
15 mindst én første hældningssensor (7, 7b), der er konfigureret til at detektere en hældning (α) for lågskallen (3) i forhold til en lodret retning (L), og belysningsindretningen (4) kan aktiveres og/eller deaktiveres i afhængighed af den detekterede hældning (α) for lågskallen (3), **kendetegnet ved, at** sensorindretningen (6a) omfatter en anden hældningssensor (12), der er konfigureret til at detektere
20 en hældning (β) af basisskallen (2) i forhold til den lodrette retning (L), hvilken belysningsindretning (4) kan aktiveres og/eller deaktiveres i afhængighed af hældningen (α) for lågskallen (3) og hældningen (β) for basisskallen (2).
2. Transportboks (1, 1a, 1b) ifølge krav 1, **kendetegnet ved, at** den første hældningssensor (7, 7b) og/eller den anden hældningssensor (12) er dannet i form af en mekanisk hældningskontakt (16).
3. Transportboks (1, 1a, 1b) ifølge krav 1 eller 2, **kendetegnet ved, at** den første hældningssensor (7, 7b) og/eller den anden hældningssensor (12) er dannet
30 i form af en elektronisk hældningskontakt (8).
4. Transportboks (1b) ifølge et af de foregående krav, **kendetegnet ved, at**

der er tilvejebragt en yderligere sensorindretning (14), som er konfigureret til at detektere mindst én yderligere detekteringsvariabel og kan aktiveres og/eller deaktiveres i afhængighed af hældningen (α) af lågskallen (3), og som er detekteret ved hjælp af sensorindretningen (6b) og/eller hældningen (β) af basisskallen (2), hvorved belysningsindretningen (4) kan aktiveres og/eller deaktiveres i
5 afhængighed af den yderligere sensorindretning (14).

5. Transportboks (1b) ifølge krav 4, **kendetegnet ved, at** den yderligere sensorindretning (14) omfatter mindst en bevægelsessensor (15), der er konfigureret
10 til at detektere en bevægelse inden i transportvoluminet (T) og/eller en bevægelse i nærheden af transportboksen (1b).

6. Transportboks (1, 1a, 1b) ifølge et af de foregående krav, **kendetegnet ved, at** et genopladeligt energilager (9) er tilvejebragt med henblik på levering af
15 elektrisk driftsenergi til belysningsindretningen (4) og/eller til sensorindretningen (6, 6a, 6b) og/eller til den yderligere sensorindretning (14).

7. Transportboks (1, 1a, 1b) ifølge krav 6, **kendetegnet ved, at** der er tilvejebragt en energi-høstningsindretning (10, 10a), som er forbundet til energilageret
20 (9), og som omfatter mindst eet piezoelektrisk virkende piezoelement (11) og/eller et termoelektrisk virkende termoelement (13) og er konfigureret til at generere elektrisk energi fra en mekanisk vibration og/eller fra en temperaturdif-ferens.

25 8. Transportboks (1, 1a, 1b) ifølge et af de foregående krav, **kendetegnet ved, at** et funktionsmodul (F), i hvilket mindst belysningsindretningen (4) og sensorindretningen (6, 6a, 6b) er integreret, er fastgjort til en inderside af lågskallen (3), fortrinsvis aftageligt.

30 9. Transportboks (1, 1a, 1b) ifølge krav 8, **kendetegnet ved, at** det genopladelige energilager (9) og den energi-høstende indretning (10, 10a) ydermere er integreret i funktionsmodulet (F).

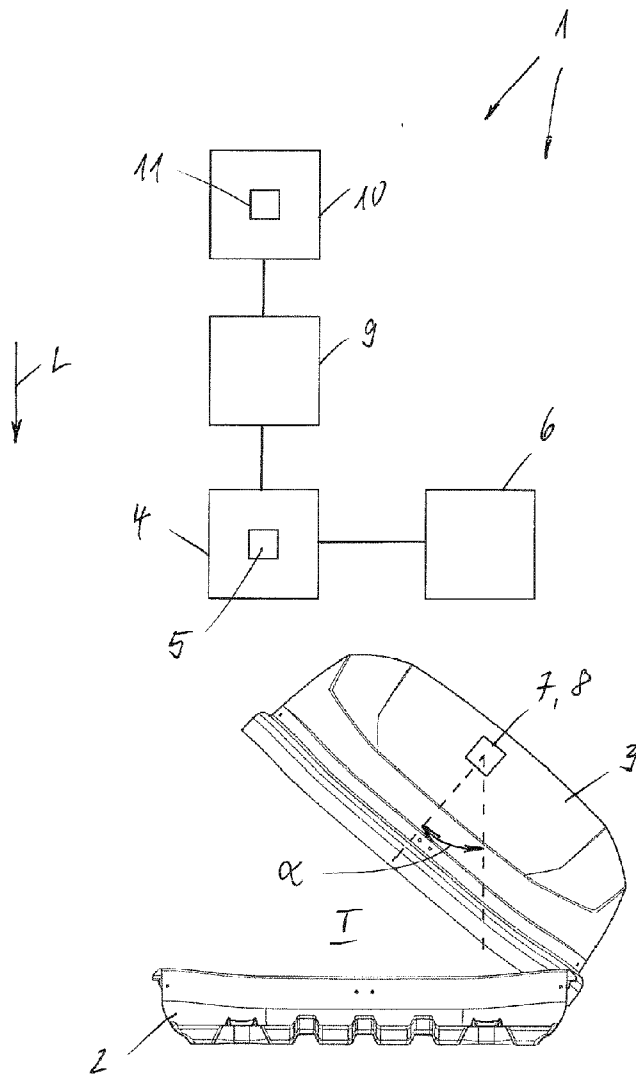


Fig. 1

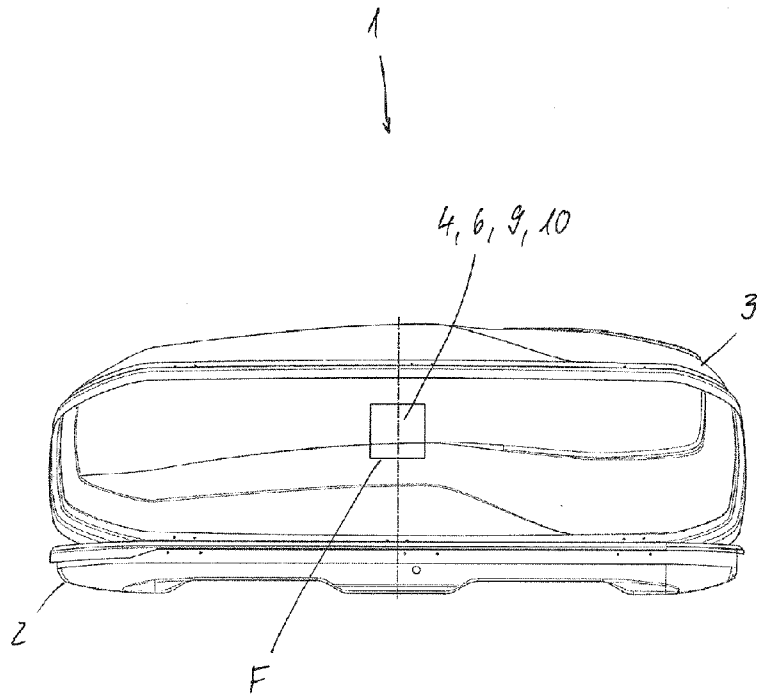


Fig. 2

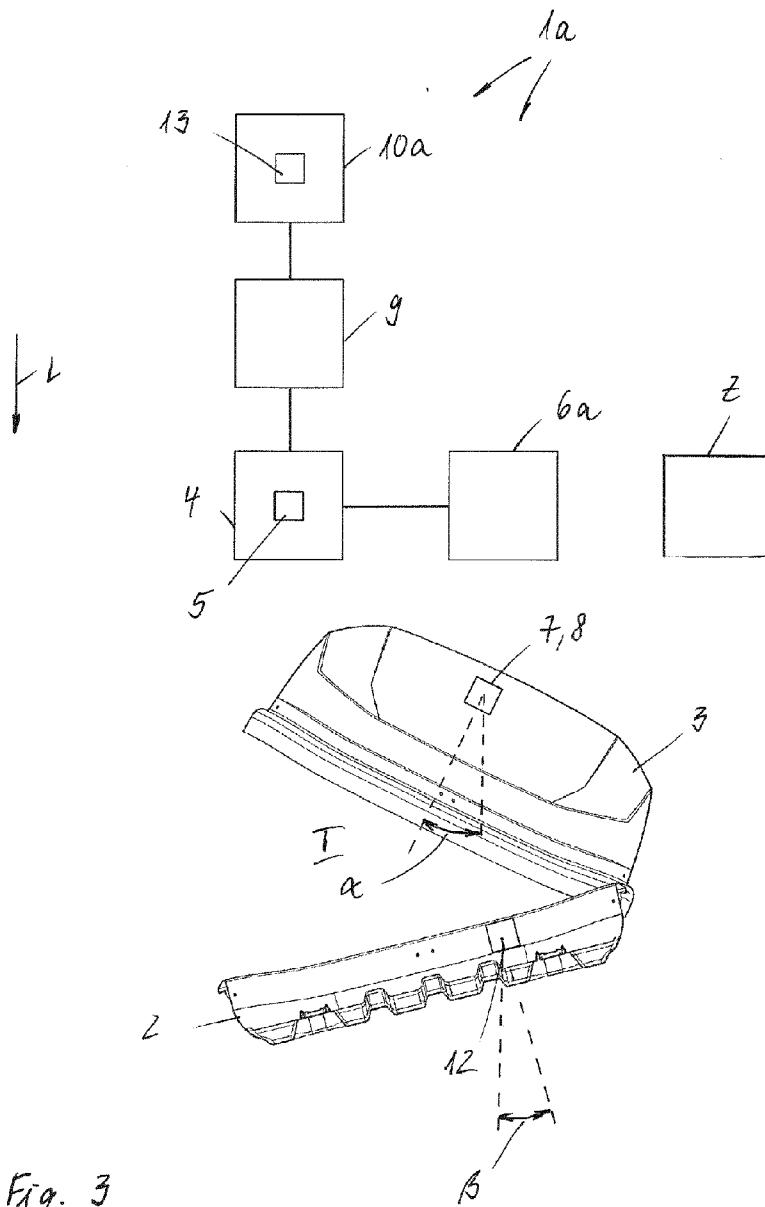


Fig. 3

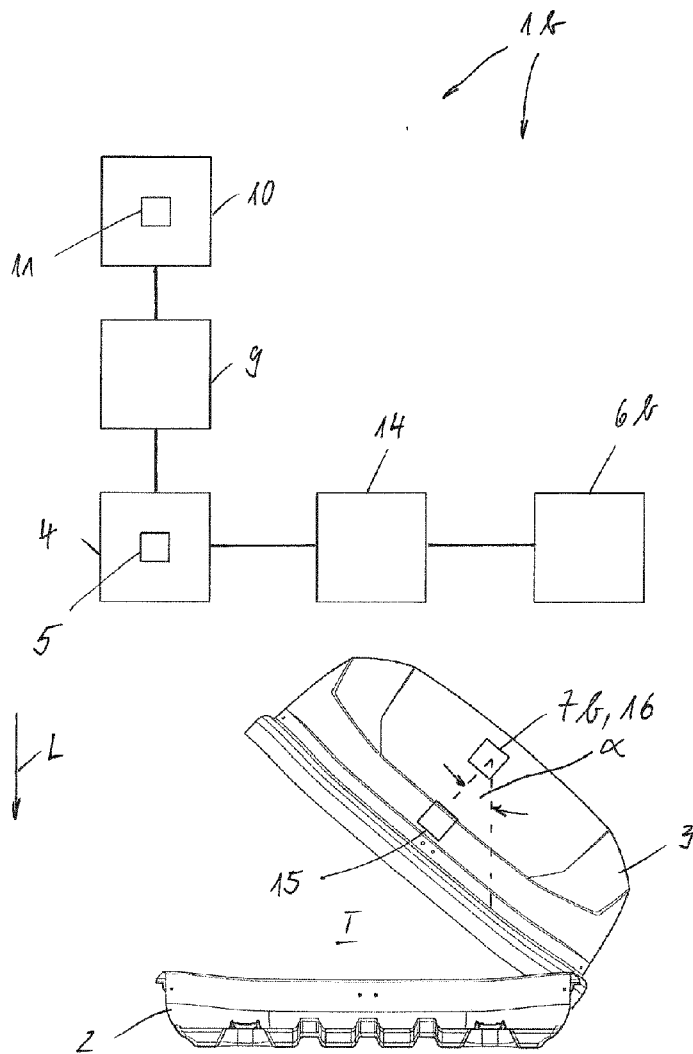


Fig. 4