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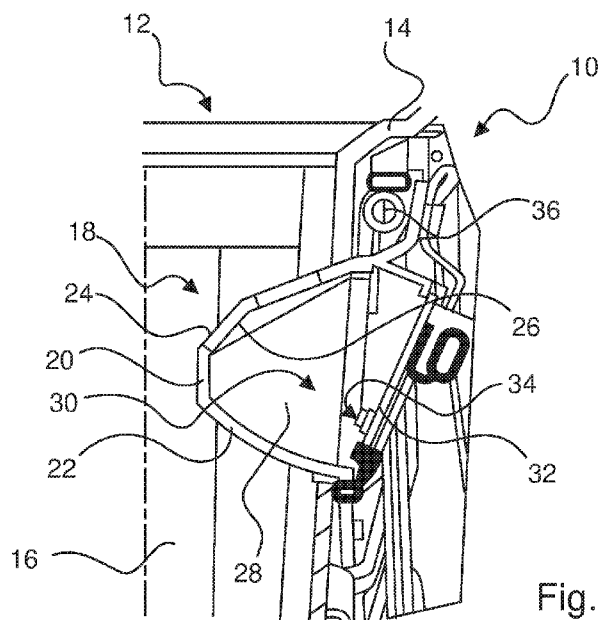


Fig. 1

(57) Abstract: A cup holder (10), in particular for a vehicle, comprises a receiving device (12) having a receiving area (16) for receiving a beverage container (100) and a stabilization device (18) adapted to stabilize a beverage container (100) inserted into the receiving area (16), wherein the stabilization device (18) has at least one alignment body (20) projecting into the receiving area (16) and the cup holder (10) further comprises an illumination device (30) adapted to illuminate the at least one alignment body (20).



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FIELD OF THE DISCLOSURE

5 The invention relates to a cup holder, in particular for a vehicle, with a receiving device having a receiving area for receiving a beverage container, and a stabilization device adapted to stabilize a beverage container inserted into the receiving area, the stabilization device having at least one alignment body projecting into the receiving area.

10 Further, the invention relates to a vehicle having at least one cup holder for receiving a beverage container.

Furthermore, the invention relates to a method of operating a cup holder, wherein the cup holder comprises a receiving device having a receiving area for receiving a beverage container and a stabilization device adapted to stabilize a beverage container inserted into the receiving area of the cup holder.

BACKGROUND

15 Modern vehicles are regularly equipped with cup holders, in which beverage containers, such as cups or bottles, can be inserted. These cup holders are configured in such a way that a stabilization of the inserted beverage container takes place in order to avoid unintended falling over or tipping over of the beverage container while driving.

20 In order to increase the comfort within a vehicle interior illuminated cup holders having for instance a stationary illuminated ring are utilized with increased regularity, wherein the illuminated ring encircles the receiving area of the cup holder. The illumination of the cup holder can be used for an optical integration of the cup holder into the illumination concept of the vehicle interior. Further, the illumination of the cup holder can be used to indicate an operational status of the cup holder. In case the temperature of the cup holder can be controlled the user can be optically informed by means of a corresponding illumination device of the cup holder, whether a heating mode or a cooling mode of the cup holder is active.

30 However, it turned out that additional illumination devices, such as stationary illuminated rings, require additional space which is not available in all vehicle models. Moreover, the usage of such separate illumination units leads to increased assembly costs and thus also to increased manufacturing costs.

Therefore, the object of the invention is to reduce the required space of an illumination device of a cup holder. Further, the assembly of such cup holders should be simplified.

SUMMARY

- 5 The object is solved by a cup holder of the aforementioned type, wherein the cup holder according to the invention comprises an illumination device adapted to illuminate the at least one alignment body.

The invention makes use of the finding that within an alignment body that projects into the receiving area and/or behind an alignment body that projects
10 into the receiving area usually unused space is available which can be used for the integration of an illumination device. The receiving area of the cup holder as well as the beverage container inserted into the receiving area can thus be illuminated by the at least one alignment body that projects into the receiving area, wherein the at least one alignment body emits optically perceptible light
15 radiation into the receiving area or in the direction of the beverage container due to its illumination by the illumination device.

Therefore, no separate illumination unit, such as a stationary illuminated ring, is necessary in order to realize an illumination function. Instead, already existing parts of the cup holder, namely the at least one alignment body, as well as
20 already existing installation spaces of the cup holder are used. Over all, this results in a significantly reduced overall complexity that leads to a simplified assembly. Furthermore, the cup holder according to the invention allows a pre-assembly of the illuminated alignment body such that the final assembly is further accelerated. In contrast to stationary illuminated rings a harmonious light pattern
25 can also be achieved, if the beverage container has a rectangular shape. The resulting light pattern adapts to the shape of the used beverage container. The at least one alignment body may be a single-piece or a multi-piece construction and/or may be adapted to come into contact with the beverage container in use. In particular, the degree of projection into the receiving area of the at least one
30 alignment body depends on the beverage container in use. The receiving area is defined for example by a receiving container of the cup holder. The receiving container may be, for instance, made of aluminum.

The stabilization device preferably has multiple alignment bodies projecting into the receiving area, wherein the multiple alignment bodies that project into the receiving area can be, for instance, uniformly distributed over the circumference of the receiving area. Furthermore, alignment bodies can be arranged opposite to
5 each other. The stabilization device may have, for example, two, three, four, five, six or more than six alignment bodies.

In a preferred embodiment of the cup holder according to the invention, the illumination device has one or multiple lighting means, which are arranged on the side of the at least one alignment body facing away from the receiving area.
10 Preferably, the one or the multiple lighting means are arranged in a hidden manner, so that they are not directly visible to a user. In particular, the one or the multiple lighting means are hidden by the at least one alignment body in the direction of the receiving area. The one or the multiple lighting means can be light-emitting diodes or LEDs.

15 In a further preferred embodiment of the cup holder according to the invention, the at least one alignment body has a contact side facing the receiving area and a rear side facing away from the receiving area. Preferably, the one or the multiple lighting means are adapted to irradiate the rear side of the at least one alignment body with light. Preferably, the one or the multiple lighting means are
20 arranged behind the at least one alignment body. Preferably, the one or the multiple lighting means are arranged and aligned such that they irradiate the rear side of the at least one alignment body with light.

In a further preferred embodiment of the cup holder according to the invention, the at least one alignment body has a wall which at least partially surrounds an
25 inner lighting chamber, wherein the one or the multiple lighting means are positioned in the lighting chamber or are aligned in the direction of the lighting chamber. When the one or the multiple lighting means are aligned in the direction of the lighting chamber, the one or the multiple lighting means are preferably located outside of the lighting chamber, but still behind the at least one alignment
30 body. The wall of the at least one alignment body preferably projects into the receiving area of the cup holder and delimits the lighting chamber from the receiving area.

In addition, a cup holder according to the invention is preferred, in which the at least one alignment body has a wall, which is at least partially translucent. Due to the fact that the wall of the at least one alignment body is translucent, a transmission of light rays through the wall can be realized, so that the receiving area and/or the beverage container inserted into the receiving area is illuminated accordingly. The wall of the at least one alignment body can be, for example, at least partially transparent or semi-transparent. Furthermore, the wall of the at least one alignment body can be colored and translucent. For example, the wall of the at least one alignment body may be dark, in particular black colored or anthracite colored.

In addition, an inventive cup holder is advantageous, in which the at least one alignment body has a wall, which is at least partially opaque. Preferably, the wall of the at least one alignment body is at the same time transparent and opaque. Thus, the components, for example the one or the multiple lighting means, which are positioned behind the at least one alignment body, are not visible to the user, wherein an illumination effect can nevertheless be achieved due to the translucency. Preferably, the at least one alignment body is partially or completely made of plastic.

In a further preferred embodiment of the cup holder according to the invention, a plurality of different luminous colors can be adjusted on the one or the multiple lighting means. Thus, the illumination of the cup holder can be adapted to other lighting elements in the vehicle interior. Furthermore, the adjustability of different luminous colors allows a dynamic color change which can be used to provide specific information to a user.

In another embodiment of the cup holder according to the invention, the cup holder as a tempering device by means of which a beverage container located within the receiving area can be tempered. The tempering device is preferably configured to cool and/or to heat the receiving area and/or a beverage container inserted into the receiving area. For example, the tempering device has one or multiple tempering surfaces, which can be used to realize a contact-tempering of the beverage container. Alternatively or additionally, the tempering device can be configured to generate one or multiple tempered air flows, which can be guided into the receiving area. In addition, the tempering device may be configured to discharge air from the receiving area, wherein the tempering device may further

comprise a closed or open air circuit. The receiving container of the cup holder may be a tempering container, which is for example made of aluminum. The receiving container may have one or multiple tempering surfaces, wherein one or multiple tempering surfaces may be positioned on the peripheral surface or at the bottom of the receiving container. Furthermore, the receiving container can have one or multiple air inlet and/or air outlet openings for pre-conditioned or pre-tempered air.

In another embodiment of the cup holder according to the invention, the tempering device has one or multiple thermoelectric devices. The one or multiple thermoelectric devices may each comprise one or multiple Peltier elements or are a Peltier element.

Furthermore, a cup holder according to the invention is preferred, which has a control device which is set up to control the illumination device dependent on a set tempering mode of the cup holder and/or dependent on an operating mode of the tempering device. For example, the control device is configured to adjust the illumination color of the illumination device dependent on a set temperature control mode of the cup holder and/or dependent on an operating mode of the tempering device. For example, a red illumination may be set in order to optically indicate that the heating mode of the tempering device is active. Alternatively, a blue illumination can be set in order to indicate that the cooling mode of the tempering device is active. Further, detected error conditions of the cup holder or of individual parts of the cup holder may be indicated to a user by means of the illumination, for example by means of a flashing pattern or a flashing frequency. For example, the control device is configured to control the illumination device in such a way, that a flicker code is displayed, which, for example, refers to an error code and therefore can be used for fault diagnoses.

Furthermore, an inventive cup holder is preferred, in which the at least one alignment body is movable and adapted to move when a beverage container is inserted into the receiving area. In particular, the at least one alignment body is pivotable and/or displaceable in radial direction. The at least one alignment body may be coupled with a return spring, so that after insertion of a beverage container in the receiving area a returning force is generated by the return spring, wherein the returning force is used to stabilize the beverage container, when a beverage container is inserted into the receiving area. When the beverage

container is removed from the receiving area, the returning force ensures that the at least one alignment body is moved back into the starting position.

In another preferred embodiment of the cup holder according to the invention, the one or the multiple lighting means are attached to the at least one alignment body such that the one or the multiple lighting means are moved by the at least one alignment body during a movement of the at least one alignment body. Preferably, the one or multiple lighting means follow the movement of the at least one alignment body. Preferably, the one or the multiple lighting means are pivotable and/or displaceable in radial direction. Preferably, the one or the multiple lighting means are attached to a circuit board. The circuit board may be attached, preferably hooked or clamped, to a circuit board holder. The circuit board holder may partially or substantially completely cover the rear side of the circuit board. Preferably, the circuit board holder is attached by means of a snap connection to the at least one alignment body.

In one embodiment of the cup holder according to the invention the at least one alignment body is elastically deformable and configured to deform elastically when a beverage container is inserted into the receiving area. The elastic deformability of the at least one alignment body may be present alternatively or additionally to the movability of the at least one alignment body. Due to the elastic deformation of the at least one alignment body that is caused by inserting a beverage container into the receiving area, a supporting force is generated which stabilizes the inserted beverage container. After removal of the beverage container from the receiving area, the at least one alignment body returns into the undeformed starting condition.

The object of the invention is also solved by a vehicle of the aforementioned type, wherein the at least one cup holder of the vehicle according to the invention is a cup holder according to one of the embodiments described above. With regard to the advantages and modifications of the vehicle according to the invention, reference is made to the advantages and modifications of the cup holder according to the invention.

The object of the invention is also solved by a method of the aforementioned type, wherein the method comprises the step of illuminating at least one alignment body of the stabilization device by means of an illumination device of the cup

holder, wherein the at least one alignment body projects into the receiving area. The inventive method is preferably used to operate a cup holder according to one of the embodiments described above. With regard to the advantages and modifications of the method according to the invention, reference is first made to the advantages and modifications of the cup holder according to the invention.

In a preferred embodiment of the method according to the invention the step of illuminating the at least one alignment body that projects into the receiving area comprises the step of irradiating a rear side of the at least one alignment body facing away from the receiving area with light by means of one or multiple lighting means of the illumination device and/or the step of illuminating an inner lighting chamber at least partially enclosed by the wall of the of the at least one alignment body by means of one or multiple lighting means of the illumination device.

In another preferred embodiment of the method according to the invention, a tempering of a beverage container located within the receiving area takes place by means of a tempering device of the cup holder. Alternatively or additionally, the luminous color of the one or multiple lighting means of the illumination device is adjusted, in particular dependent on a set temperature control mode of the cup holder and/or dependent on an operating mode of a tempering device of the cup holder. The method may further comprise the step of moving and/or deforming the at least one alignment body by inserting a beverage container into the receiving area and/or the step of moving the one or multiple lighting means by inserting a beverage container into the receiving area. The step of adjusting the luminous color of the one or multiple lighting means of the illumination device may comprise, for example, the step of adjusting a red luminous color when the cup holder is in a heating mode. Further, a blue luminous color may be set when the cup holder is in a cooling mode. Furthermore, the method may comprise the step of setting a flashing pattern and/or a flashing frequency. Furthermore, flicker codes can be generated by means of the illumination device, wherein the flicker codes can be, for example, assigned to an error code and can be used for fault diagnosis.

BRIEF DESCRIPTION OF THE DRAWINGS

Hereinafter, preferred embodiments of the invention will be explained and described in more detail with reference to the accompanying drawings. Showing:

- Fig. 1 details of an embodiment of a cup holder according to the invention in a sectional view;
- Fig. 2 the cup holder shown in fig. 1 with a beverage container inserted;
- Fig. 3 an illumination device of a cup holder according to the invention in a front view;
- 5 Fig. 4 an alignment body of a cup holder according to the invention together with the illumination device shown in fig. 3;
- Fig. 5 an alignment body of a cup holder according to the invention together with an illumination device in an exploded view; and
- 10 Fig. 6 an electronic circuit of a cup holder according to the invention in a schematic representation.

DETAILED DESCRIPTION

Fig. 1 shows a cup holder 10 which is adapted to be used in a vehicle, in particular in an automobile. The cup holder 10 comprises a receiving device 12 into which a beverage container 100 can be inserted. For this purpose, the receiving device 12 comprises a receiving container 14, which is made of aluminum and which defines a receiving area 16 for receiving the beverage container 100.

The cup holder 10 further comprises a stabilization device 18 by means of which a beverage container 100 inserted into the receiving area 16 can be stabilized. The stabilization device 18 has multiple alignment bodies 20 projecting into the receiving area 16. Only one alignment body 20 of the multiple alignment bodies 20 is shown. The multiple alignment bodies 20 are arranged uniformly along the circumference of the receiving container 14 and extend through corresponding recesses in the wall of the receiving container 14.

The alignment bodies 20 of the cup holder 10 are one-piece plastic bodies and each have a wall 22 projecting into the receiving area 16. The respective alignment bodies 22 have a contact side 24 facing the receiving area 16 and a rear side 26 facing away from the receiving area 16. The contact sides 24 of the respective alignment bodies 20 come into contact with the outer wall of a

beverage container 100 when a beverage container 100 is inserted. The wall 22 of the respective alignment bodies 20 is translucent and opaque. The plastic material of the respective alignment bodies 20 has a dark color, for example black.

- 5 The cup holder 10 also has an illumination device 30 that is used to illuminate the alignment body 20. The illumination device 30 has multiple lighting means 34, which are arranged on the side of the at least one alignment body facing away from the receiving region 16. The lighting means 34 are LEDs. The lighting means 34 are arranged and aligned such that the rear sides 26 of the respective
10 alignment body 20 are irradiated with light. The walls 22 of the respective alignment bodies 20 each enclose an inner lighting chamber 28, wherein the respective lighting means 34 are aligned in the direction of the lighting chamber 28. The lighting means 34 are arranged on printed circuit boards 32, which are positioned behind the respective alignment bodies 20. Due to the translucent and
15 opaque configuration of the alignment bodies 20, the lighting means 34 that are arranged behind the respective alignment bodies 20 as well as the remaining components of the illumination device 30 cannot be perceived optically by a user of the cup holder 10.

- The alignment body 20 and the lighting means 34 assigned to the respective
20 alignment bodies 20 are movable and adapted to move when a beverage container 100 is inserted into the receiving area 16. The alignment bodies 20 and the lighting means 34 attached to the respective alignment bodies 20 are pivoted when a beverage container 100 is inserted due to the linkage of the respective alignment bodies 20 with a hinge 36.

- 25 Fig. 2 shows the cup holder 10 after insertion of a beverage container 100. The shown alignment body 20 was pivoted in the direction of rotation R during insertion of the beverage container 100 into the receiving region 16. Due to the attachment of the circuit board 32 to the alignment body 20 a pivotal movement of the circuit board 32 and a pivotal movement of the lighting means 34 attached
30 on the circuit board 32 takes place when the beverage container 100 is inserted in the receiving area 16. Thus, the lighting means 34 are attached to the respective alignment bodies 20 in such a way that the lighting means 34 get moved through the respective alignment body 20 during a movement of the alignment body 20.

In an alternative embodiment, the alignment bodies 20 can also be displaceable in the radial direction when a beverage container 100 is inserted into the receiving area 16. In a further alternative embodiment, the alignment bodies 20 may also be elastically deformable, so that a movement of the alignment body 20
5 not necessarily has to take place when a beverage container 100 is inserted in the receiving area 16.

The cup holder 10 is a temperature controlled cup holder and has a tempering device 62 by means of which a beverage container 100 inserted into the receiving area 16 is temperature controlled. The tempering of the beverage
10 container 100 may relate to the heating or cooling of the beverage container. The tempering of the beverage container 100 can be realized by means of temperature controlled surfaces by contact tempering. Alternatively or additionally, the tempering device 62 can generate tempered air flows, which are introduced into the receiving area 16 for tempering the beverage container 100.
15 In this case, the receiving container 14 can have one or multiple air inlet and/or air outlet openings for tempering air. Particularly preferred is a tempering device 62 that comprises one or multiple thermoelectric devices 54. The thermoelectric devices 54 can be configured as Peltier elements.

Fig. 3 shows an illumination device 30 with a printed circuit board 32, wherein
20 two lighting means 34a, 34b configured as LEDs are mounted on the printed circuit board. The printed circuit board 32 is connected via fastening members 40a, 40b to a circuit board holder 38, wherein the fastening members 40a, 40b provide a positive connection. The circuit board 32 is hooked or clamped to the circuit board holder 38. The circuit board holder 38 covers the rear side of the
25 circuit board 32 basically completely. The lighting means 34a, 34b are supplied with electrical energy via electrical lines 58.

Fig. 4 shows that the circuit board holder 38 can be connected to a fastening section of an alignment body 20 via the fastening members 42a, 42b. In addition, a pin of the hinge 36 is arranged on the fastening section of the alignment body
30 20, via which the illustrated assembly can pivotally integrated into the cup holder 10. An operating module 44 for operating the lighting means 34a, 34b is positioned on the circuit board 32.

Fig. 5 shows that the respective alignment bodies 20 are coupled to a return spring 60. The return spring 60 applies a spring load to the alignment body 20 when installed, so that a returning force is generated when a beverage container 100 is inserted into the receiving area 16. When the beverage container 100 is removed from the cup holder 10, the returning force ensures that the respective alignment bodies 20 are moved back into the starting position.

The electronic circuit of the cup holder 10 illustrated in fig. 6 shows that the cup holder 10 has a control device 46. The control device 46 is configured to control the illumination device 30 of the cup holder 10 dependent on a set temperature control mode of the cup holder 10 or dependent on an operating mode of the temperature control device 62 of the cup holder 10. The lighting means 34a, 34b of the illumination device 30 are LEDs and allow the setting of different luminous colors. Thus, the illumination color can, for example, be adapted to a lighting concept of the vehicle interior.

Furthermore, the control device 46 is connected to a tempering device 62, wherein the tempering device 62 has a thermoelectric device 54 being a Peltier element and a thermistor 56 being a thermistor. An air flow, which is generated by the air conveyor 52, can be tempered by means of the thermoelectric device 54. The air conveyor 52 may be, for example, a fan. The tempered air flow can then be used to control the temperature of a beverage container 100 inserted into the receiving area 16. The temperature in the proximity of the thermoelectric device 54 and thus the temperature of the tempered air flow can be detected by means of the thermistor 56. The temperature can be used for control purposes.

The control device 46 is configured to detect the operating mode of the tempering device 62 in order to control the illumination device 30 dependent on the detected operating mode. When the tempering device 62 is in a heating mode, a red luminous color can be set at the lighting means 34a, 34b. When the tempering device 62 is in a cooling mode, a blue luminous color can be set at the lighting means 34a, 34b. Further, the control device 46 allows setting of a flashing pattern or a flashing frequency. Furthermore, flicker codes that can be used for fault diagnosis can be generated by means of the lighting means 34a, 34b.

Further, the control device 46 is connected to a switch 48 and to a connection unit 50. The control unit is supplied with electrical energy by means of the

connection unit 50. For example, the connection unit 50 may be electrically coupled to a storage device for electrical energy of a vehicle.

Reference Numerals

	10	cup holder
	12	receiving device
5	14	receiving container
	16	receiving area
	18	stabilization device
	20	alignment body
	22	wall
10	24	contact side
	26	rear side
	28	lighting chamber
	30	illumination device
	32	printed circuit board
15	34, 34a, 34b	lighting means
	36	hinge
	38	circuit board holder
	40a, 40b	fastening members
	42a, 42b	fastening members
20	44	operating module
	46	control device
	48	switch
	50	connection unit
	52	air conveyor
25	54	thermoelectric device
	56	thermistor
	58	electrical lines
	60	return spring
	62	tempering device
30		
	100	beverage container
	R	direction of rotation

CLAIMS

1. Cup holder (10), in particular for a vehicle, with
 - a receiving device (12) having a receiving area (16) for receiving a
5 beverage container (100); and
 - a stabilization device (18) adapted to stabilize a beverage container
(100) inserted into the receiving area (16),
wherein the stabilization device (18) has at least one alignment body (20)
projecting into the receiving area (16),
10 characterized by an illumination device (30) adapted to illuminate the at
least one alignment body (20).
2. Cup holder (10) according to claim 1,
characterized in that the illumination device (30) has one or multiple lighting
15 means (34, 34a, 34b) which are arranged on a side of the at least one
alignment body (20) facing away from the receiving area (16).
3. Cup holder (10) according to claim 2,
wherein the at least one alignment body (20) has a contact side (24) facing
20 the receiving area (16) and a rear side (26) facing away from the receiving
area (16),
characterized in that the one or multiple lighting means (34, 34a, 34b) are
adapted to irradiate the rear side (26) of the at least one alignment body
(20) with light.
25
4. Cup holder (10) according to one of the preceding claims,
characterized in that the at least one alignment body (20) has a wall (22)
which at least partially surrounds an inner lighting chamber (28), wherein
the one or multiple lighting means (34, 34a, 34b) are positioned in the
30 lighting chamber (28) and/or are aligned in the direction of the lighting
chamber (28).
5. Cup holder (10) according to one of the preceding claims,
characterized in that the at least one alignment body (20) has a wall (22)
35 that is at least partially translucent.

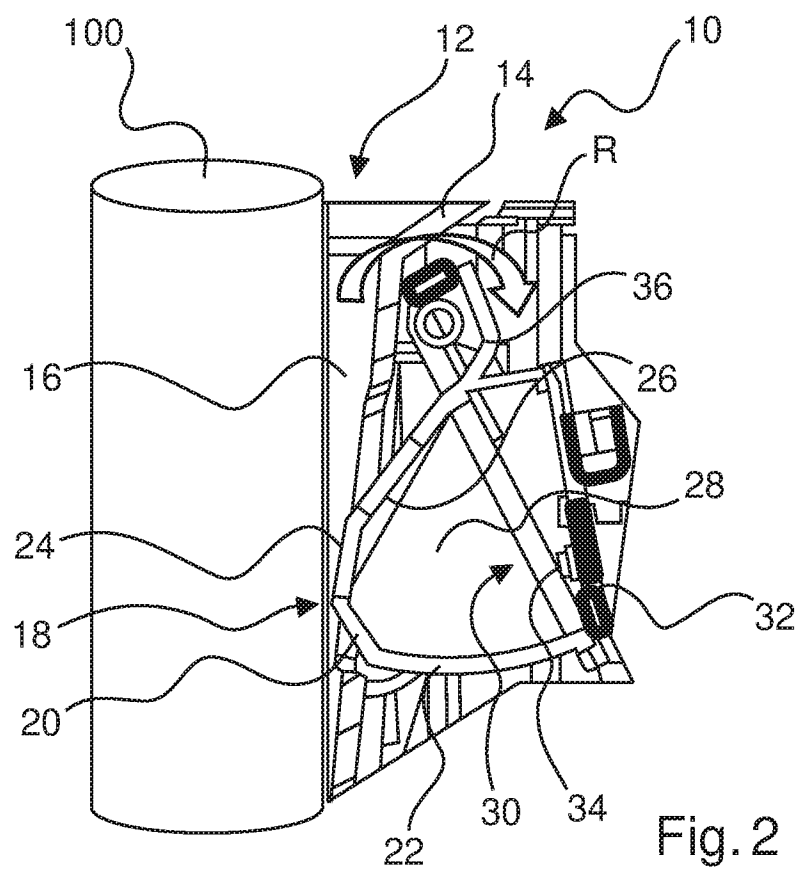
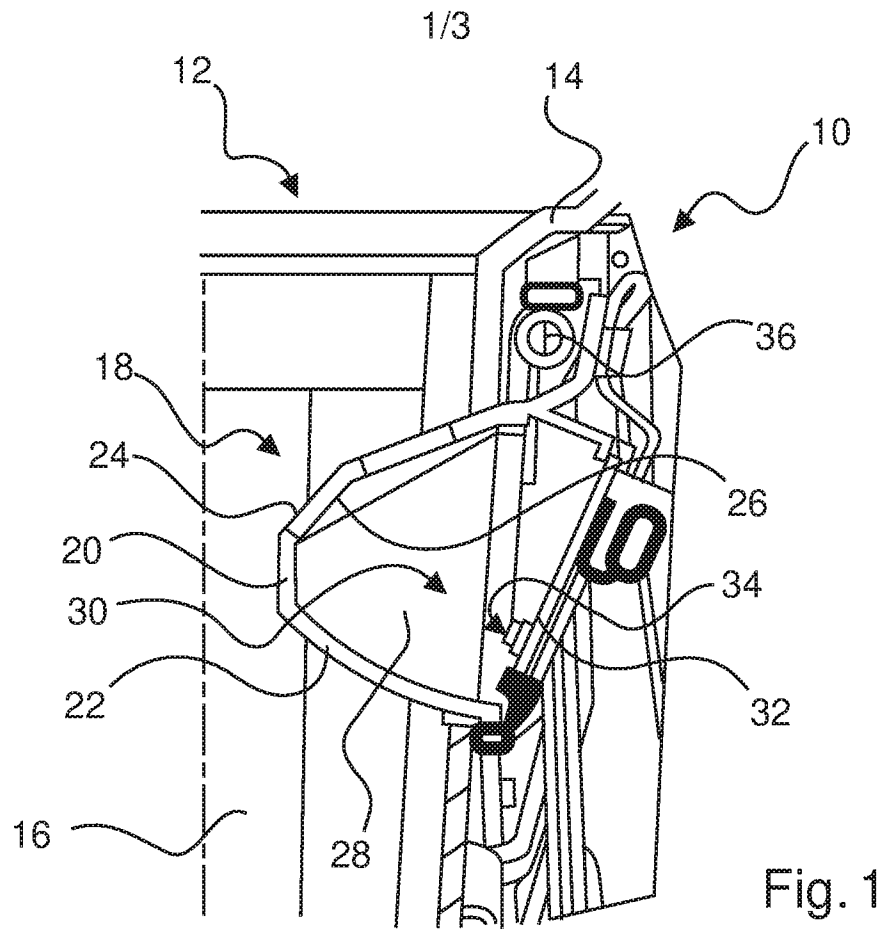
6. Cup holder (10) according to one of the preceding claims,
characterized in that the at least one alignment body (20) has a wall (22)
that is at least partially opaque.
- 5 7. Cup holder (10) according to one of claims 2 to 6,
characterized in that a plurality of different luminous colors are adjustable at
the one or multiple lighting means (34, 34a, 34b).
- 10 8. Cup holder (10) according to one of the preceding claims,
characterized by a tempering device (62) allowing for tempering a beverage
container (100) located in the receiving area (16).
- 15 9. Cup holder (10) according to claim 8,
characterized in that the tempering device (62) comprises one or multiple
thermoelectric devices (54).
- 20 10. Cup holder (10) according to claim 8 or 9,
characterized by a control device (46) adapted to control the illumination
device (30) dependent on a set tempering mode of the cup holder (10)
and/or in dependent on an operating mode of the tempering device (62).
- 25 11. Cup holder (10) according to one of the preceding claims,
characterized in that the at least one alignment body (20) is movable and
adapted to move when a beverage container (100) is inserted in the
receiving area (16).
- 30 12. Cup holder (10) according to one of the preceding claims,
characterized in that the one or multiple lighting means (34, 34a, 34b) are
attached to the at least one alignment body (20) such that the one or
multiple lighting means (34, 34a, 34b) are moved by the at least one
alignment body (20) upon movement of the at least one alignment body
(20).
13. Cup holder (10) according to one of the preceding claims,

characterized in that the at least one alignment body (20) is elastically deformable and is adapted to elastically deform when a beverage container (100) is inserted in the receiving area (16).

- 5 14. Vehicle, with
- at least one cup holder (10) for receiving a beverage container (100); characterized in that the at least one cup holder (10) is a cup holder (10) according to one of the preceding claims.
- 10 15. Method for operating a cup holder (10), preferably cup holder (10) according to one of the claims 1 to 13, wherein the cup holder (10) has a receiving device (12) that has a receiving area (16) for receiving a beverage container (100) and a stabilization device (18) adapted to stabilize a beverage container (100) inserted into the receiving region (16),
- 15 characterized by the step:
- illuminating at least one alignment body (20) of the stabilization device (18) by means of an illumination device (30) of the cup holder (10), wherein the at least one alignment body (20) projects into the receiving area (16).
- 20 16. Method according to claim 15,
- characterized in that the step of illuminating the at least one alignment body (20) that projects into the receiving area (16) comprises at least one of the following steps:
- 25 - irradiating a rear side of the alignment body (20) facing away from the receiving area (16) of by means of one or multiple lighting means (34, 34a, 34b) of the illumination device (30);
- illuminating an inner lighting chamber (28) at least partially enclosed by the wall (22) of the at least one alignment body (20) by means of
- 30 one or multiple lighting means (34, 34a, 34b) of the illumination device (30).
17. Method according to one of claims 15 or 16,
- characterized by at least one of the following steps:
- 35 - tempering a beverage container (100) located in the receiving area (16) by means of a tempering device (62) of the cup holder (10);

- adjusting the luminous color of the one or multiple lighting means (34, 34a, 34b) of the illumination device (30), in particular dependent on a set temperature control mode of the cup holder (10) and/or dependent on an operating mode of a tempering device (62) of the cup holder (10);
- moving and/or deforming the at least one alignment body (20) by inserting a beverage container (100) into the receiving area (16);
- moving the one or multiple lighting means (34, 34a, 34b) by inserting a beverage container (100) in the receiving area (16).

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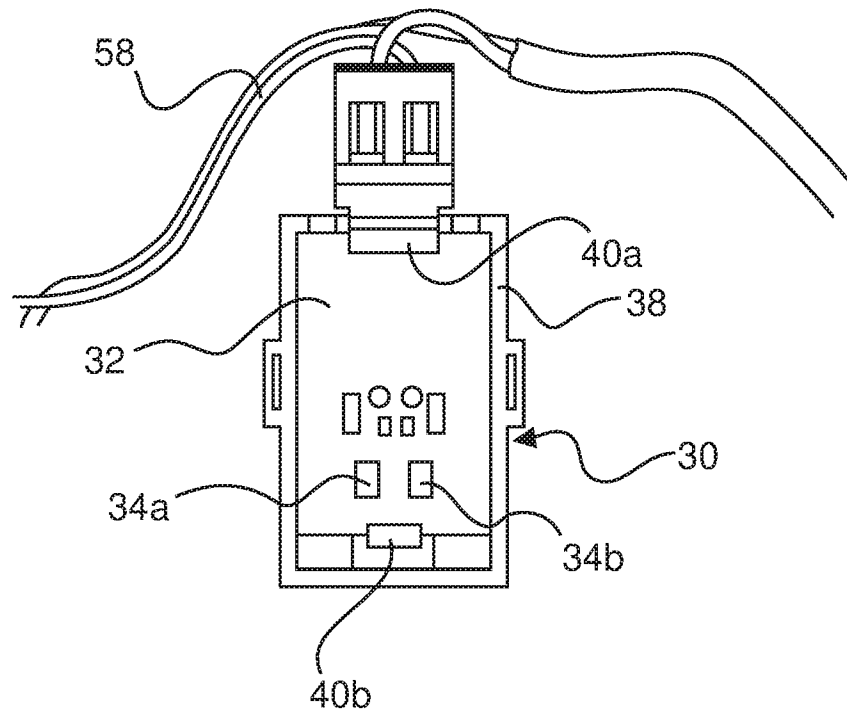


Fig. 3

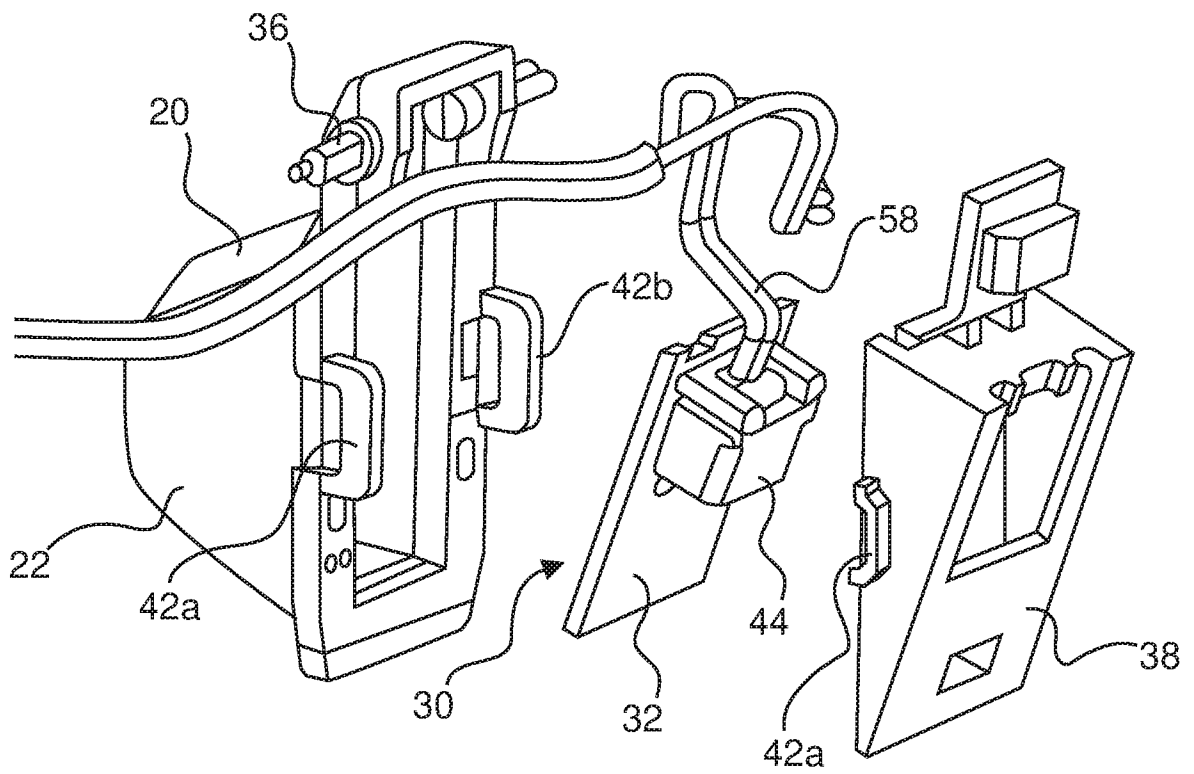


Fig. 4

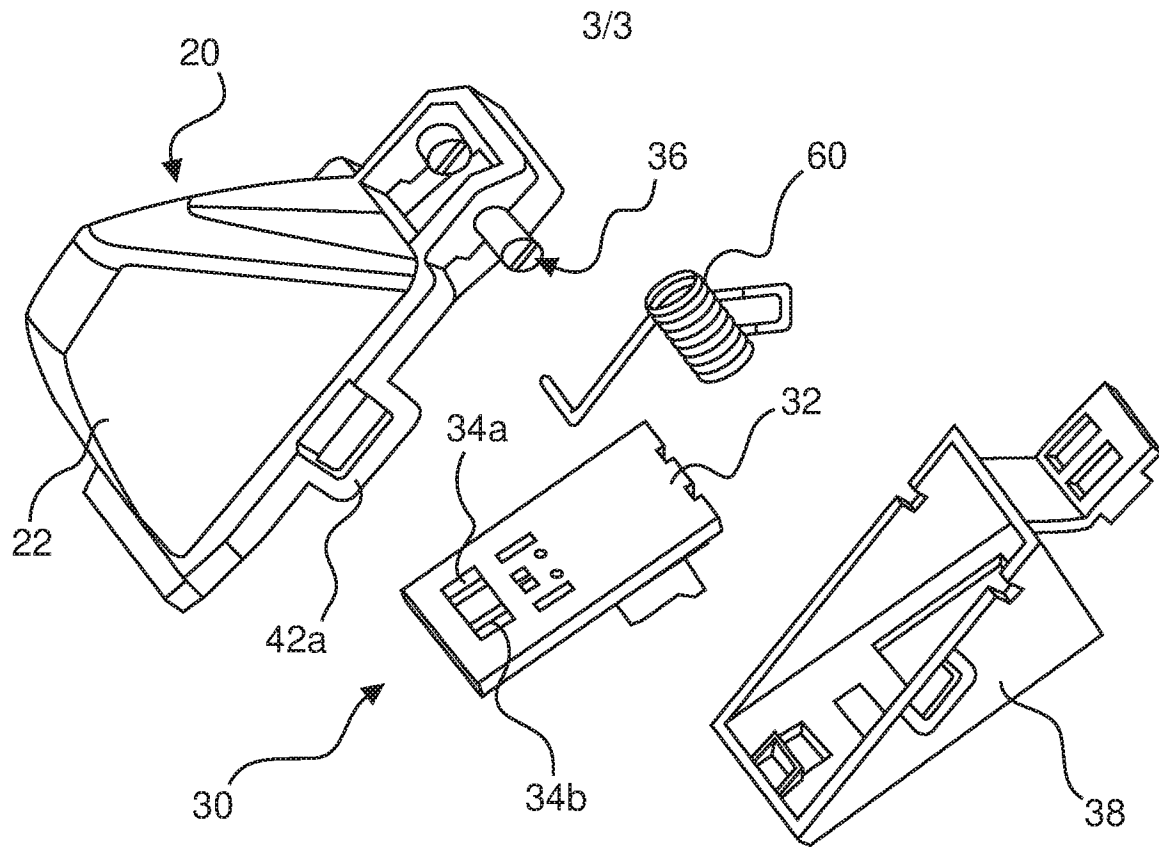


Fig. 5

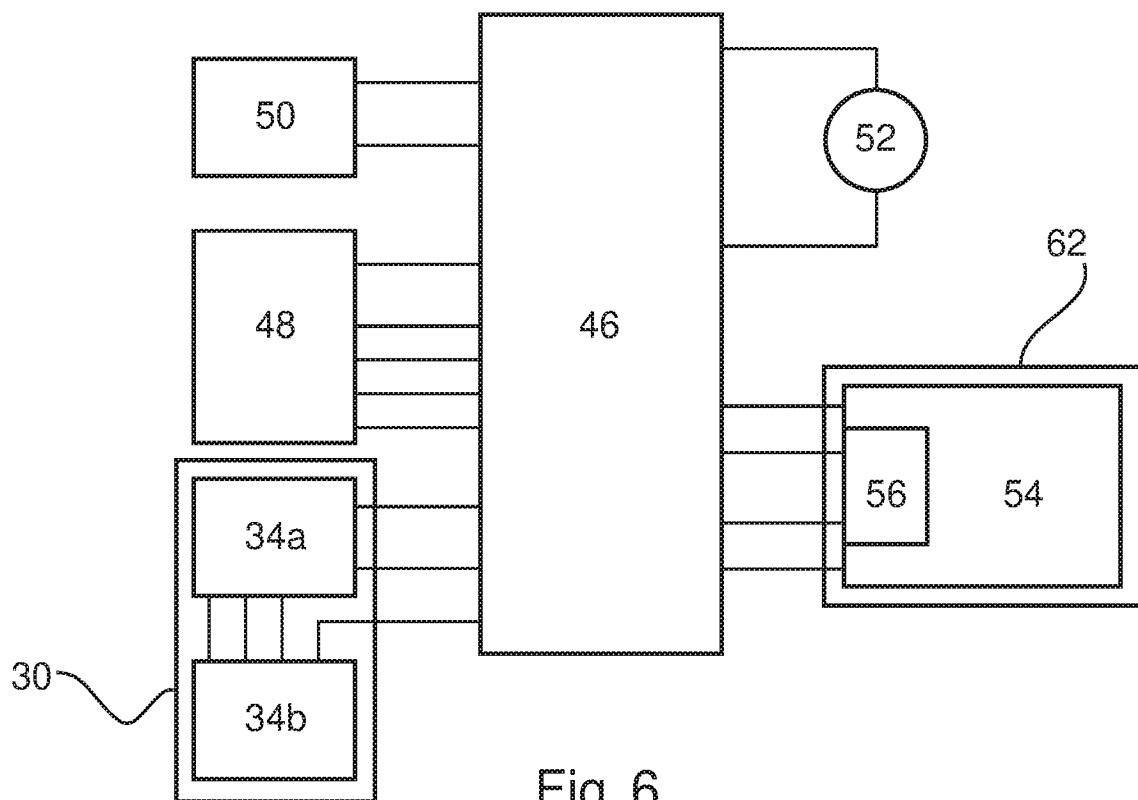


Fig. 6

INTERNATIONAL SEARCH REPORT

International application No.

PCT/CN2018/122057

A. CLASSIFICATION OF SUBJECT MATTER

B60N 3/10(2006.01)i

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

B60N; B60R

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

CNPAT, CNTXT, CNKI, EPODOC, WPI: cup, holder, alignment, body, stabilization, illumination, light, face, wall, temper???, move

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 2015165954 A1 (HYUNDAI MOTOR COMPANY) 18 June 2015 (2015-06-18) description, paragraphs [0017]-[0030], figures 1-2	1-17
X	US 2015175046 A1 (HYUNDAI MOTOR COMPANY ET AL.) 25 June 2015 (2015-06-25) description, paragraphs [0021]-[0037], figures 1-3	1-17
X	US 2012118930 A1 (SIMON, JAMES SCOTT ET AL.) 17 May 2012 (2012-05-17) description, paragraphs [0021]-[0024], figures 1-7	
A	US 2013342104 A1 (AUDI AG.) 26 December 2013 (2013-12-26) the whole document	1-17
A	US 2011261579 A1 (ANDERSON, JAMES B. ET AL.) 27 October 2011 (2011-10-27) the whole document	1-17
A	US 2011037287 A1 (TOYOTA MOTOR ENGINEERING & MANUFACTURING NORTH AMERICA, INC.) 17 February 2011 (2011-02-17) the whole document	1-17
A	CN 104210405 A (FORD GLOBAL TECHNOLOGIES L.L.C.) 17 December 2014 (2014-12-17) the whole document	1-17



Further documents are listed in the continuation of Box C.



See patent family annex.

* Special categories of cited documents:

“A” document defining the general state of the art which is not considered to be of particular relevance

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“O” document referring to an oral disclosure, use, exhibition or other means

“P” document published prior to the international filing date but later than the priority date claimed

“T” later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

“X” document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

“Y” document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

“&” document member of the same patent family

Date of the actual completion of the international search

29 August 2019

Date of mailing of the international search report

19 September 2019

Name and mailing address of the ISA/CN

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Telephone No. 86-(10)-53962384

INTERNATIONAL SEARCH REPORT
Information on patent family members

International application No.

PCT/CN2018/122057

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