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Description

5 The invention relates to a wet room for a rail vehicle, which comprises at least one lighting means and/or a light-admitting structure as well as an interior, which is at least partly delimited by a ceiling, a floor and at least one side wall.

10 Wet rooms in rail vehicles must satisfy many comfort conditions and always be in a hygienically correct state. Besides sufficient illumination, these comfort conditions include in particular the existence of a particular room temperature inside the wet room. If the wet room is installed in a rail vehicle, the room temperature must or should not be below the temperature prevailing in the rest of the rail vehicle, but conversely should have a value slightly above this temperature. For example, wet rooms in high-speed trains with a changing table should be at least as warm as the passenger compartment, but only 4 kelvin warmer.

15 Other wet rooms in high-speed trains or all wet rooms in other trains should be at most 6 kelvin warmer than the passenger compartment. However, wet rooms in trains are often not in the passenger compartment but in a vestibule which may be cooler than the passenger compartment. The wet rooms therefore often need to be warmer than the region in which they are located. Furthermore, the positive overall impression of the wet room is also very

20 important for the well-being of the passenger, which besides hygienically clean surfaces inside the wet room is also contributed to by odour pollution which is as small as possible.

A wet room of the species is described, for example, in WO 94/06663 A1.

25 Halogen lamps, fluorescent tubes or LED lights, where possible even OLED lights, are used as illumination elements in wet rooms. Wet rooms in which the illumination is carried out indirectly, for example by means of a light-admitting structure such as a window or a porthole, may also be envisaged. Panel heaters or air circulating heaters are often used for heating the wet room to the aforementioned temperature value. If a panel heater is used, it may be

30 configured as a so-called wet room wall element. Convection heaters, on the other hand, may be produced in a compact design, for example as so-called duct heaters, and comprise heating element as well as a fan. In such a duct heater, air is taken in through an intake opening into an air circulating duct, then passes through a heating element which heats the air, and is subsequently blown out through a blow-out opening.

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In order to prevent the spreading of unpleasant odours in the rail vehicle, an exhaust air system comprising an air outlet for exhaust air is installed in the wet room, which constantly causes a slight reduced pressure in the wet room so that an air stream always takes place from the vestibule/passenger compartment into the wet room and not in the opposite direction. In order to produce this reduced pressure, air is continuously expelled from the interior of the wet room. Spreading of unpleasant odours coming from the wet room in the vehicle is therefore prevented. However, a not inconsiderable part of the heated air is thereby also lost as exhaust air, so that the energy efficiency of the wet room is unnecessarily reduced.

Document CN 102 765 401 A1 discloses a toilet bowl with a photocatalytic coating for self-cleaning of the toilet when irradiated with UV light. A corresponding UV lamp is fitted on the toilet lid.

The object of the invention is now to provide a wet room for a rail vehicle, which is capable of satisfying inter alia the aforementioned comfort conditions while at the same time increasing the energy efficiency of the wet room in comparison with the prior art.

A wet room for a rail vehicle which comprises an interior, which is at least partly delimited by a ceiling, a floor and at least one side wall, is provided. The wet room furthermore comprises at least one lighting means and/or light-admitting structure. According to the invention, the wet room comprises a photocatalytic element, which is designed to release air-purifying substances when activated by means of light. The photocatalytic element is thus activated by light impinging on the element, more air-purifying substances being released with increased light impingement, for instance with a high light intensity, than with less or without light impingement.

In this case, the photocatalytic element is configured as a side or ceiling element and is fitted between the at least one lighting means and/or the at least one light-admitting structure and the interior of the wet room, so that the light of the at least one lighting means and/or of the at least one light-admitting structure for illuminating the interior shines directly onto the photocatalytic element. In this embodiment, the photocatalytic element is in turn advantageously designed to be transparent or substantially translucent, or it comprises openings through which the light of the at least one lighting means and/or of the at least one light-admitting structure for illuminating the interior can pass into the interior. The intermediate space formed in this way between the photocatalytic element, the at least one lighting means and/or the at least one light-admitting structure may in this case be used for

guiding the air stream of a ventilation or air conditioning system, in particular of the air circulating element.

Such a wet room makes it possible to reduce the volume of air fed out from the wet room considerably and at the same time to satisfy the requirements placed on the odour pollution in the interior, or on the hygiene of the interior of the wet room. When irradiated with light, the photocatalytic element releases substances, or radicals, which break down odours, viruses, bacteria and germs from the air. Purification of the air may therefore be carried out without sizeable air volumes having to be exchanged with the environment of the wet room, so that a lower heat energy contribution is required in order to achieve and maintain the required temperature in the wet room in comparison with the prior art.

The wet room furthermore preferably comprises a photocatalytic element which is designed to release air-purifying radicals when activated by means of light.

In one preferred embodiment, the photocatalytic element is arranged inside the wet room in such a way that it can be irradiated with light from the lighting means and/or is irradiated by light entering the wet room through the light-admitting structure. In such an embodiment, the photocatalytic element is always activated when light of the lighting means or light entering through the light-admitting structure impinges on the photocatalytic element. In the general case, the photocatalytic element is therefore activated precisely when the wet room is occupied. Constant illumination of the photocatalytic element is therefore not necessary. Even if the photocatalytic element is illuminated constantly, it is not used up by this.

Preferably, the photocatalytic element comprises photocatalytic titanium dioxide which releases reactive oxygen when activated by light. Particularly preferably, the photocatalytic element comprises silver-doped photocatalytic titanium dioxide. In such an embodiment, the light which can be emitted by means of the at least one lighting means or which is admitted through the light-admitting structure preferably has a wavelength λ which is less than or equal to 400 nm. Furthermore, the light which can be emitted by means of the at least one lighting means or which is admitted through the light-admitting structure, and which impinges on the photocatalytic element, preferably has an intensity I which is greater than or equal to 100 lux. With an intensity of less than 100 lux, the surface area of the photocatalytic element would need to be increased in order to achieve the same effect as a photocatalytic element illuminated with at least 100 lux.

Photocatalytic titanium dioxide has many advantages, which are to be found particularly in the field of hygienization, disinfection, air purification, self-cleaning and odour neutralisation. It has an antimicrobial effect on almost all surfaces and is very suitable for oxidising organic substances, viruses, germs and noxious gases into nonharmful substances.

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The wet room preferably furthermore comprises an air outlet for exhaust air and an air circulating element, by means of which an air stream can be produced within the interior of the wet room. With such an air outlet, a reduced pressure may be produced and maintained inside the wet room in a straightforward way, while the formation of a desired air circulation in the interior of the wet room may advantageously be achieved straightforwardly with the air circulating element.

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In one preferred embodiment, the photocatalytic element is furthermore arranged inside the wet room in such a way that an air stream produced by the air circulating element impinges on the photocatalytic element. In such an embodiment, the air stream is guided directly onto the photocatalytic element so that efficient purification of the air inside the wet room may be ensured. By such favourable air guiding, a specified volume flow of air is therefore purified.

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Preferably, the air circulating element is configured as an air circulating heater which comprises an air circulating duct, an intake opening in the ceiling of the wet room being connected in an air-conducting manner by means of the air circulating duct to a blow-out opening in the floor or in the at least one side wall of the wet room. The air circulating duct preferably comprises a heating element. The air circulating duct particularly preferably comprises a fan, with which air can be taken in or blown out. In such an embodiment, purified air from the ceiling can be fed back into the wet room in a lower region thereof and simultaneously be heated to a predetermined temperature.

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In one preferred embodiment, the photocatalytic element comprises a plastic element which is provided with a photocatalytic coating. The coating preferably has a thickness d of $d \leq 0.4 \mu\text{m}$. In such an embodiment, the coating dries very rapidly after application on the plastic element. Plastic elements may be obtained straightforwardly, in large numbers and economically.

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Preferably, the plastic element is transparent or substantially translucent. In such an embodiment, the plastic element may for example be fitted inside the wet room directly in front of or in the immediate vicinity of the at least one lighting means or light-admitting

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structure. This allows reliable activation of the photocatalytic element while simultaneously ensuring sufficient lighting of the wet room.

5 Preferably, the photocatalytic element has the form of a panel. Such a panel may be integrated very well into the structure of a wet room.

10 In one preferred embodiment, the panel is respectively provided with the photocatalytic coating on at least two sides. Particularly preferably, the panel is respectively provided with the photocatalytic coating on at least two mutually opposite sides. In such an embodiment, the photocatalytic element acts particularly efficiency since on the one hand reflected, i.e. only indirectly incident, light also leads to activation of the photocatalytic element, and on the other hand the air stream is directly confronted with the photocatalytic coating.

15 Preferably, the photocatalytic element is configured as a ceiling element and is fitted in or directly below the ceiling of the wet room. The ceiling element is preferably a cladding part which is fitted in the interior of the wet room. When it is configured as a ceiling element, a user of the wet room does not notice the presence of the photocatalytic element. Furthermore, a ceiling element fitted in or directly below the ceiling of the wet room is also located in the immediate vicinity of the intake opening and therefore within the air stream which can be generated by means of the air circulating element, which improves the efficiency of the air purification in the interior of the wet room.

25 Preferably, the at least one lighting means is fitted in or directly below the ceiling of the wet room. Furthermore preferably, the lighting means is fitted in a wall, particularly in a side wall, or in a mirror cabinet combination of the wet room. In such an embodiment, a lighting means which is turned on shines its light directly into the photocatalytic element.

30 A rail vehicle having a wet room according to the invention is furthermore provided. In such an embodiment, the advantages mentioned above are obtained in a rail vehicle.

Further preferred configurations of the invention may be found from the other features mentioned in the dependent claims.

35 The various embodiments of the invention which are mentioned in this application may advantageously be combined with one another unless otherwise stated in particular cases.

The above-described properties, features and advantages of this invention, as well as the way in which they are achieved, will become clearer and more understandable in connection with the following description of the exemplary embodiments, which are explained in detail in connection with the drawings, in which:

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Figure 1 shows a first schematic exemplary embodiment of a wet room for a rail vehicle, and

Figure 2 shows a second exemplary embodiment of a wet room for a rail vehicle.

10 Figure 1 shows a first schematic exemplary embodiment of a wet room 20 according to the invention for a rail vehicle. The wet room 20 comprises an interior 10, which in this first exemplary embodiment is purely by way of example delimited by a ceiling 2, a floor 4 and four side walls 6. In this first exemplary embodiment, the wet room 20 comprises a lighting means 8, which in this first exemplary embodiment is configured purely by way of example as a halogen lamp and is mounted on the ceiling 2 of the wet room 20. It is, however, also possible to produce wet rooms 20 according to the invention which have more than one as well as different lighting means 8, which may also be positioned elsewhere inside the wet room 20 according to the invention. In a wet room 20 according to the invention, it is for instance also possible to use fluorescent tubes, light-emitting diodes (LEDs), projection lights or gas discharge lamps, which may for example also be installed in a side wall 6 or even in the floor 4 of the wet room 20 or in another structural or cladding part arranged inside the wet room 20. Furthermore, it is also possible to configure wet rooms 20 according to the invention in which no lighting means is installed, or provided, but which only comprise a light-admitting structure 9. In this case, a light-admitting structure 9 is intended to mean any opening inside the wet room 20 through which light from outside the wet room 20 is capable of entering the interior 10 of the latter. In this first exemplary embodiment, a light-admitting structure 9 is provided purely by way of example in the form of a frosted glass window in one of the side walls 6 of the wet room 20. However, a light-admitting structure 9 may for example also be provided in the form of an opening slot in the ceiling 2, in one of the side walls 6 or in the floor 4 of the wet room 20.

The wet room 20 furthermore comprises a photocatalytic element 1 which releases air-purifying substances when activated by means of light. In this first exemplary embodiment, the photocatalytic element 1 comprises a carrier medium, which is provided with a photocatalytic coating 30 which releases the air-purifying substance when activated by means of light. Differently constructed photocatalytic elements 1 may, however, also be produced

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inside wet rooms 20 according to the invention. For example, the light-admitting structure itself may be coated with the photocatalytic element 1. Furthermore, for example, a photocatalytic element 1 may also consist exclusively of the aforementioned photocatalytic coating 30 or may comprise a solid photocatalytic material with the aforementioned air-purifying property. Activation by means of light is intended to mean irradiation with light or excitation by light. The light used for the activation may in this case be emitted by an artificial light source, for example the lighting means 8 of the wet room 20, or it may also impinge on the photocatalytic element 1 through the light-admitting structure 9.

- 10 In this first exemplary embodiment, the photocatalytic coating 30 purely by way of example comprises photocatalytic titanium dioxide which releases reactive oxygen or oxygen radicals when activated by light. In other words, the coating purifies the air by means of a photocatalytic effect in which, in this first exemplary embodiment, oxygen radicals which break down odours, viruses, bacteria and germs from the air are produced on the layer. In this
15 first exemplary embodiment, purely by way of example, light with a wavelength $\lambda \leq 400$ nm and an intensity $I \geq 100$ lux is required for the activation of the layer. If the intensity is less than 100 lux, the surface area of the photocatalytic coating 30 would need to be increased in order to achieve the same effect as a photocatalytic coating 30 illuminated with at least 100 lux. In this first exemplary embodiment, the lighting means 8 is capable of emitting such light.
20 The light required for the activation of the photocatalytic element 1 may therefore be provided by the light source 8.

It is, however, also possible to use other photocatalytic elements 1, photocatalytic substances or coatings, which can be activated by different light, or by light with different properties and
25 characteristics.

Figure 2 shows a second exemplary embodiment of a wet room 20 according to the invention for a rail vehicle. More precisely, the wet room 20 represented in Figure 2 is a WC installed in a rail vehicle, which comprises a multiplicity of fitting elements (not represented in Figure 2),
30 for example a wash basin and pipes. The wet room 20 comprises an interior 10, which in this exemplary embodiment is purely by way of example delimited by a ceiling 2, a floor 4 and four side walls 6. Provided inside one of the side walls 6, there is a door 11 which can for example be opened and closed by a user of the wet room 20 and through which a user can enter the interior 10 of the wet room 20. When the door 11 is closed, light from outside the
35 wet room 20 can enter the interior 10 of the wet room 20 through two door gaps 12. In this second exemplary embodiment, the door gaps 12 are formed purely by way example between

the door 11 and the side wall 6 in which the door 11 is arranged. As an alternative, the air supply may for example be formed by ventilation slots in the form of a ventilation grating in the door 11. While one of the door gaps 12 is formed between the door 11 and the side wall 6 at the end of the door 11 facing towards the ceiling 2 of the wet room 20, the other door gap 12 is located between the door 11 and the side wall 6 at the end of the door 11 facing towards the floor 4 the wet room 20. The door gaps 12 each per se constitute a light-admitting structure 9, which in other exemplary embodiments may also be provided elsewhere in the wet room 20, but do not have to be provided. Through the door gaps 12, air from the exterior of the wet room 20 may also enter the interior 10 of the latter. A door handle (represented in black in Figure 2), by means of which the door 11 can be opened and closed, is fitted on the door 11.

[0033] In this second exemplary embodiment, the wet room 20 purely by way of example comprises two lighting means 8, which in this second exemplary embodiment purely by where example are respectively configured as LED lights and are mounted on the ceiling 2 of the wet room 20. In the operating state, for example when the wet room 20 is occupied by a user, light may be shone into the interior 10 of the wet room 20 by the two lighting means 8. In this case, the entire interior 10 is lit. In this second exemplary embodiment, the activation of the lighting means 8 may be carried out purely by way of example by operating a switch (not represented). Lighting means 8 in wet rooms 20 configured according to the invention may, however, also be activatable in any other desired way, for example automatically when the door is opened, or in an entirely different way.

In this second exemplary embodiment, the wet room 20 furthermore comprises an optional air outlet 22 for exhaust air and an optional air circulating element 24, by means of which an air stream may be produced within the interior 10 of the wet room 20. In this second exemplary embodiment, the air outlet 22 is arranged purely by way of example in a side wall 6 of the wet room 10 and is connected by means of an optional exhaust air duct 35 to the exterior of the wet room 20. Arranged inside the exhaust air duct 35, there is an optional exhaust air fan 34, by the operation of which it is possible to regulate the volume of air which is expelled as exhaust air from the interior 10 of the wet room 20. By means of the air outlet 22 inside the wet room 20, it is possible to produce a reduced pressure in the interior 10 of the wet room 20, which prevents air from flowing out of the interior 10 of the wet room 20 into the rail vehicle. In contrast thereto, air flows from the passenger compartment into the interior 10 of the wet room 20 because of the reduced pressure.

The air circulating element 24 is configured purely by way of example in this exemplary embodiment as an air circulating heater 25 which comprises an air circulating duct 26 and a heating element 23 arranged therein. In wet rooms 20 according to the invention, however, it is also possible to use other types of air circulating elements 24, which may also be configured without, or with a different, heating element 23. For example, other elements generating an air stream within the interior 10 of the wet room 20 may also be used, such as fans or blowers. In this exemplary embodiment, the air circulating heater 25 comprises an intake opening 27 which is arranged in the ceiling 2 of the wet room 20 and in which, purely by way of example, an optional sensor 36 by means of which the temperature of the air taken in can be measured is arranged. A blow-out opening 28 is provided in a lower region of a side wall 6 of the wet room 20. In other exemplary embodiments of wet rooms 20 according to the invention, both the intake opening 27 and the blow-out opening 28 may be arranged in the floor 4 of the wet room 20 or in a (different) side wall 6 or the ceiling 2 of the wet room 20. The blow-out opening 28 and the intake opening 27 are connected in to one another in an air-conducting manner by means of the air circulating duct 26, the air circulating duct 26 being guided past the interior 10 of the wet room 20, i.e. not guided through the interior 10 of the wet room 20. In this second exemplary embodiment, the heating element 23 is configured purely by way of example in the form of a spiral and is contained in the air circulating duct 26. Other heating elements 23, which may for example also be located outside the air circulating duct 26, may however also be used in wet rooms 20 according to the invention. A duct fan 33, by means of which the air circulation through the circulating duct 26 can be generated, is installed between the heating element 23 and the blow-out opening 28. The duct fan 33 may, however, also be arranged at a different position inside the air circulating duct 26. Furthermore, it is also possible to configure wet rooms 20 according to the invention with circulating air heaters 25 entirely without a duct fan 33.

By means of the sensor 36, as a function of the result of the measurement of the temperature, an operating signal is generated for the heating element 23 and transmitted thereto. If the air has a temperature value which lies below the predetermined desired operating temperature inside the wet room 20, the heating element 23 is turned on. By starting the duct fan 33, air is taken in through the intake opening 27 from a region near the ceiling 2 of the wet room 20, guided past the heating element 23, heated by the heating element 23, and blown out again through the blow-out opening 28 in the region of the floor 4 of the wet room 20. This creates an air stream in the interior 10 of the wet room 20, which extends substantially from the floor 4 of the wet room 20 to its ceiling 2 and is indicated by arrows in Figure 2. Inter alia through the aforementioned door gaps 12, air from outside the wet room 20 enters its interior 10 and

takes part in the air circulation, or the air circuit, while air from the air circulation, or from the air circuit, emerges through the exhaust air duct 35. In this exemplary embodiment, the air circulating element 24 is operated continuously so that a high level of air purity is achieved. It is, however, also possible to configure wet rooms 20 according to the invention in which the air circulating element 24 is operated only in predetermined intervals or in response to an action by the user. Wet rooms 20 according to the invention may also be produced with air circulating heaters 24 which comprise at least one heating element 23, the operating modes of which differ from that described above, i.e. the starting of which is for example not dependent on a predetermined temperature being fallen below but is regulated in a different way.

Provided inside the wet room 20, there is a photocatalytic element 1 which releases air-purifying substances when activated by means of light. In this second exemplary embodiment, the photocatalytic element 1 is configured as a ceiling element 32, or as a cladding part which is fitted directly below the ceiling 2 of the wet room 20. More precisely, the photocatalytic element 1 comprises an air-permeable and translucent grating 15, which is for example arranged directly below the ceiling 2 of the wet room 20 and centrally carries a plastic element 29. As an alternative, the photocatalytic element 1 may comprise a translucent coated panel for the illumination or the fitted on such a panel. Besides the panel, gratings may be provided for the ventilation. An air circulating stream may be guided through the grating and optionally past the lights. In this second exemplary embodiment, the plastic element 29 is configured purely by way of example as a transparent panel which rests on the grating 15 and is translucent. Both on the side of the panel facing towards the lighting means 8, i.e. on the side facing towards the ceiling 2 of the wet room 20, and on the side of the panel facing towards the floor 4 of the wet room 20, it is provided with a photocatalytic coating 30 which releases the air-purifying substances, or radicals, when activated by means of light. By being arranged directly below the ceiling 2 of the wet room 20, the photocatalytic element 1 is therefore arranged inside the wet room 20 in such a way that it can be irradiated directly with light of the lighting means 8 and is irradiated by light entering the wet room 20 through the light-admitting structure 9, i.e. through the door gaps 12. Furthermore, the side of the panel facing towards the floor 4 of the wet room 20 is irradiated with indirect radiation of the lighting means 8, i.e. with radiation reflected at the side walls 6 or the floor 4 or at other components of the wet room 20. Since the photocatalytic element 1 is also positioned or arranged directly below the intake opening 27 of the air circulating element 24, it is also arranged directly in the air stream which can be generated by means of the air circulating element 24, so that air from the above-described air circulation can be guided past the photocatalytic element 1 and

confronted with the photocatalytic element 1. In this way, the air circulating through the wet room 20 is purified with respect to viruses, bacteria, odours and germs.

In this second exemplary embodiment, the photocatalytic coating 30 comprises photocatalytic titanium dioxide which releases reactive oxygen, or oxygen radicals, when activated by light, i.e. when irradiated with light. Air guided along the plastic panel coated in this way is therefore constantly treated. It is, however, also possible to produce wet rooms 20 according to the invention with differently constructed and differently configured photocatalytic elements 1. For example, the photocatalytic element 1 does not need to have the form of a panel. Furthermore, photocatalytic elements 1 may also be produced without a plastic element 29 or with different supporting or design elements. The photocatalytic element 1 of a wet room 20 according to the invention also does not need to have a grating 15, and may be fastened in the wet room 20 in a different way. For example, a photocatalytic coating 30 may also be sprayed only onto a structural or design element of the wet room 20, for example onto the ceiling 2 of the wet room 20, and thus form the photocatalytic element 1. Furthermore, it is also possible to use other photocatalytic coatings, or elements, which release the air-purifying substances when activated by means of light, so that the photocatalytic element 1 does not have to comprise titanium dioxide.

The invention allows an efficient and energy-saving combination of illumination, heating and hygienization of the interior 10 of a wet room 20. By the double-sided photocatalytic coating 30 of the transparent plastic panel, twice the area of the panel is available for the treatment of the air. The indirect lighting inside the wet room 20 is also used for activating the titanium dioxide layer, so that by favourable air guiding a predetermined specified volume flow of air may be purified and simultaneously heated according to requirements. Although the invention has been further illustrated and described in detail by preferred exemplary embodiments, the invention is not restricted to the examples disclosed and other variants may be derived therefrom by the person skilled in the art in the context of the claims, without departing from the protective scope of the invention.

P a t e n t k r a v

1. Vådcelle (20) til et skinnekøretøj, omfattende
- 5 - et inderrum (10), som i det mindste delvist er afgrænset af et loft (2), en bund (4) og mindst en sidevæg (6);
- mindst et lysmiddel (8) og/eller en lysindgang (9);
- kendetegnet ved, at**
- 10 - vådcellen (20) omfatter et fotokatalytisk element (1), som er indrettet til ved aktivering ved hjælp af lys at frigøre luftrensende stoffer, hvor det fotokatalytiske element (1) er udført som side- eller loftselement (32) og er anbragt mellem det mindst ene lysmiddel (8) og vådcellens inderrum (20).
2. Vådcelle (20) ifølge krav 1, **kendetegnet ved, at** det fotokatalytiske element (1) er anbragt inden i vådcellen (20) på en sådan måde, at det kan bestråles
- 15 med lys fra lysmidlet (8) og/eller bestråles af indfaldende lys, der kommer ind i vådcellen (20) via lysindgangen (9).
3. Vådcelle (20) ifølge et af de foregående krav, **kendetegnet ved, at** det fotokatalytiske element (1) omfatter fotokatalytisk titaniumdioxid, som ved en aktivering med lys frigør reaktivt oxygen.
- 20
4. Vådcelle (20) ifølge et af de foregående krav, hvor vådcellen (20) endvidere omfatter en luftudgang (22) til aftræksluft samt et luftcirkulationselement (24), ved hjælp af hvilket der kan genereres en luftstrøm inden i vådcellens (20)
- 25 inderrum (10).
5. Vådcelle (20) ifølge krav 4, **kendetegnet ved, at** det fotokatalytiske element (1) endvidere er anbragt inden i vådcellen (20) på en sådan måde, at en luftstrøm, der genereres ved hjælp af luftcirkulationselementet (24), rammer på
- 30 det fotokatalytiske element (1).
6. Vådcelle (20) ifølge krav 4 eller 5, **kendetegnet ved, at** luftcirkulationselementet (24) er udført som en luftcirkulationsopvarmningsindretning (25), som omfatter en luftcirkulationskanal (26), hvor en indsugningsåbning (27) i vådcellens (20) loft (2) er forbundet luftledende via cirkulationsluftkanalen (26)
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med en udblæsningsåbning (28) i bunden (4) eller i den mindst ene sidevæg (6) af vådcellen (20).

5 7. Vådcelle (20) ifølge et af de foregående krav, **kendetegnet ved**, at det fotokatalytiske element (1) omfatter et kunststofelement (29), som er forsynet med en fotokatalytisk coating (30).

10 8. Vådcelle (20) ifølge krav 7, **kendetegnet ved**, at kunststofelementet (29) er transparent eller i det væsentlige lysgennemtrængeligt.

9. Vådcelle (20) ifølge et af de foregående krav, **kendetegnet ved**, at det fotokatalytiske element (1) har form som en plade.

15 10. Vådcelle (20) ifølge krav 9, **kendetegnet ved**, at pladen på mindst en side er forsynet med den fotokatalytiske coating (30).

20 11. Vådcelle (20) ifølge et af de foregående krav, **kendetegnet ved**, at det fotokatalytiske element (1) er udført som loftselement (32) og er anbragt i eller umiddelbart neden under vådcellens (20) loft (2).

12. Vådcelle (20) ifølge krav 11, **kendetegnet ved**, at det mindst ene lysmiddel (8) er anbragt i eller umiddelbart neden under vådcellens (20) loft (2).

13. Skinnekøretøj med en vådcelle (20) ifølge et af kravene 1 til 12.

FIG 1

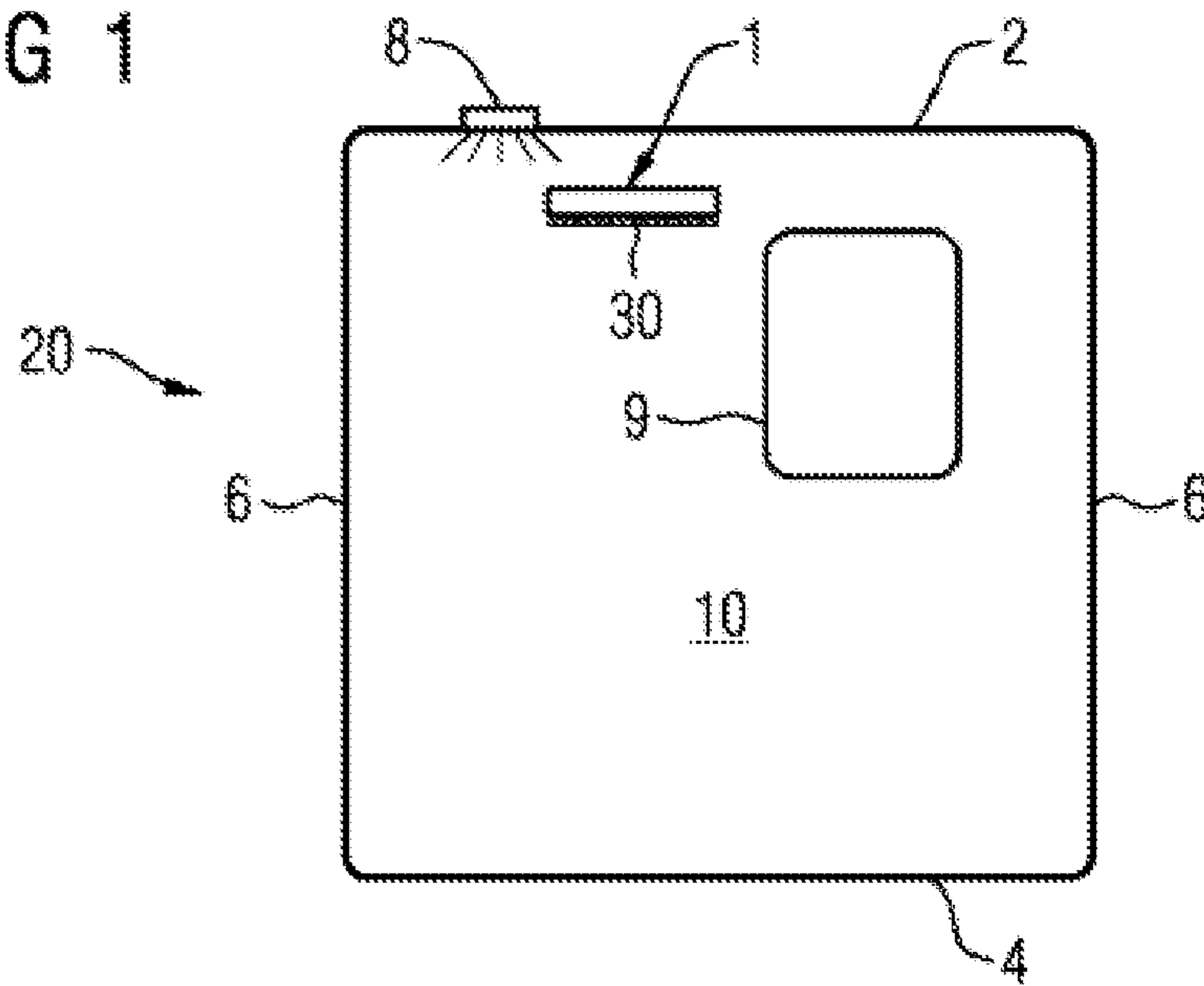


FIG 2

