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(54) ELECTRONIC PARKING DISC

(57) The invention concerns an electronic parking disc for a vehicle; where the parking disc includes a front and a back; where the front includes a first display for indication of an initial time of parking; where the back includes a second display for indication of the actual clock time; where the back includes one or more means of input for setting the parking disc; where the parking disc includes a movement sensor, capable of sensing whether the parking disc is being subject to movement or is in a stationary state; where the parking disc includes a data

processor and a connected unit for data storage; where the parking disc includes an electronic clock; where the unit for data storage includes a control system for controlling the function of the parking disc; where the parking disc includes a battery for supply of electrical power to those parts of the parking disc, that requires a power supply. The parking disc is characterised by that it comprises one or more solar cells for supply of electrical power to those parts of the parking disc that requires a power supply.

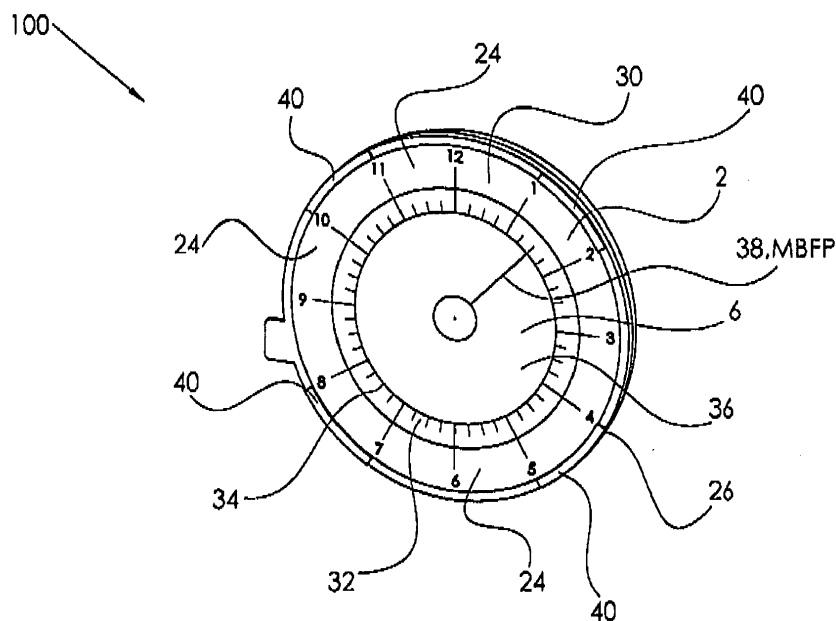


Fig. 1a

Description

Technical field of the invention:

[0001] The present invention concerns an electronic parking disc.

Background of the invention:

[0002] It is common practice, on public streets and areas, that the authority having the responsibility for the specific street or specific area, introduce provisions for regulation of the allowed duration of parking for a vehicle.

[0003] Such any provisions on limitation of the duration of an allowed parking are typically made public by signage, where information on the allowed duration of a parking, optionally dependent on the specific time of parking, is specified.

[0004] In order to facilitate that an authority of control can monitor that such provisions on limited permitted duration for parking of a vehicle is complied with, legislation enshrined provisions are made that commits the use of a so called parking disc, when a vehicle is parked on a street or in an area where rules on time-limited parking applies.

[0005] Thus, in announcement no. 327 of April, 29 - 2003, details on statutory use of a parking disc in Denmark are indicated. A traditional parking disc typically includes a rectangular piece of cardboard or plastic on which is printed the numbers 1 to 12 arranged as the hours in a circle.

[0006] Additionally, shown on the disc, a separation into four segments of each interval between two integer time numbers is made such that each hour is separated into four quarters of an hour. On the rectangular disc is a pointer rotateable mounted. The pointer is intended for pointing at a specific time corresponding to the time for initiating a parking of a vehicle

[0007] Concluding the parking of a vehicle the parking disc is set by adjusting the pointer to point at the time which according to the law is considered to reflect the time where the parking was initiated. Subsequently, the parking disc is placed behind the windshield in such a way that the initial time of parking easily can be monitored by an examiner. As it appears from the above described, a traditional parking disc will have to be set manually for each and every parking occurrence.

[0008] However, it can easily happen, that the driver of the vehicle forgets to adjust the parking disc when initiating a parking on an area prescribing time limited parking. In the same way it can easily happen that a driver parks the vehicle without adjusting the parking disc of the reason that the driver is not aware of that there on the concerned place exist applicable rules for time-limited parking.

[0009] In case a driver does not comply with the rules for time-limited parking, he or she will risk being imposed a parking fine as punishment for unallowed parking.

[0010] In recent years, in order to avoid such problems, a variety of different types of electronic parking discs has been introduced to the market. An electronic parking disc is designed for automatically adjusting the parking disc in such a way as to indicate the time of initiating a parking each and every time a vehicle is parked.

[0011] One type of such electronic parking discs is electrically connected to the electrical system of the vehicle. Thereby it is possible in an easy way to inform the parking disc on the initial time of parking, since the initial time of parking can be seen as being the time, when an electrical signal from the electrical system of the vehicle brings forth the specific information, as e.g. when the vehicle engine is stopped.

[0012] Another type of such electronic parking discs is not electrically coupled to the electrical system of the vehicle. On the contrary, this type of electronic parking disc features its own power supply. In addition this type of electronic parking disc includes a movement sensor, being capable of sensing when the vehicle engine stops running. On basis of this, the parking disc can define a time corresponding to the initiating of the parking.

[0013] Even though the above mentioned two types of electronic parking discs solve the problems associated with the traditional parking discs relating to forgetting to adjust the parking disc, the last mentioned type of electronic parking disc does not always safeguard against parking fines due to unallowed parking.

[0014] The reason for this is, that the contemplated function of this type of parking discs relies on a sufficient voltage level on the one or more embedded battery cells, responsible for the necessary voltage to the parking disc. In the case, where the one or more embedded battery cells lose the voltage, either because of consumption or another defect, the parking disc loses its contemplated way of function, which can induce a risk of breaking the law regulating allowable parking, which again induce the risk of getting a parking fine serving as a punishment for not allowed parking.

[0015] Thus, there is a need for an improved electronic parking disc of the type which is not connected to the electrical system of the vehicle and which overcomes the above mentioned disadvantage.

[0016] It is an object of the present invention to present an electronic parking disc that overcomes this disadvantage.

Brief description of the invention:

[0017] The object of the invention is achieved with an electronic parking disc according to the invention.

[0018] The invention presents an electronic parking disc for a vehicle;

where the parking disc comprises a front and a back; where the front comprises a first display serving for indicating a time for initiating the parking;

where the back comprises a second display serving for indicating the actual time; where the back comprises one

or more input means for setting the parking disc;
 where the parking disc comprises a movement-sensor capable of sensing whether the parking disc is subject to movement or is stationary;
 where the parking disc comprises a data processor and an associated unit for data storage;
 where the parking disc comprises an electronic clock-work; where the data storage comprises a control system for controlling the function of the parking disc;
 where the parking disc comprises a battery for the supply of electrical voltage to the parts of the parking disc that requires a voltage supply
 characterized by, that the parking disc comprises one or more solar cells for the supply of electrical voltage to the parts of the parking disc that requires a voltage supply.
[0019] The designation front is here used to describe the side of the parking disc, that when the parking disc is correctly fixed in position to e.g. the windshield of the vehicle, face towards the windshield and can be monitored through this. The designation back is here used to describe that side of the parking disc, which when the parking disc is correctly fixed in position to e.g. the windshield of the vehicle, can be monitored from inside the vehicle.

[0020] With the parking disc according to the invention it is possible to avoid initiating a parking without setting the initial time of parking caused by exhausted batteries, since the invention as a supplement to batteries also includes one or more solar cells.

Short description of the drawing:

[0021]

Fig. 1a is a perspective view of the front of a circular electronic parking disc according to the invention.
 Fig. 1b is a perspective view of the back of a circular electronic parking disc according to the invention.
 Fig. 2 is a schematic sketch showing the functioning of the electronic parking disc 100 according to the invention and
 Fig. 3 is an exploded view of the main components of the parking disc.

Detailed description of the invention:

[0022] The invention concerns as mentioned an electronic parking disc for a vehicle;
 where the parking disc comprises a front and a back;
 where the front comprises a first display serving for indicating a time for initiating the parking;
 where the back comprises a second display serving for indicating the actual time;
 where the back comprises one or more input means for setting the parking disc;
 where the parking disc comprises a movement-sensor capable of sensing whether the parking disc is subject to movement or is stationary;

where the parking disc comprises a data processor and an associated unit for data storage;
 where the parking disc comprises an electronic clock-work; where the data storage comprises a control system for controlling the function of the parking disc;
 where the parking disc comprises a battery for the supply of electrical voltage to the parts of the parking disc that requires a voltage supply;
 where the parking disc is characterized by, that the parking disc comprises one or more solar cells for the supply of electrical voltage to the parts of the parking disc that requires a voltage supply.

[0023] The solar cell or more solar cells can be arranged on the front or on the back or on the rim of the parking disc housing. Thus, there is no limitation for the arrangement of solar cells over the surface of the housing.

[0024] In a preferred embodiment the dataprocessor is configured to show the actual clock time on a second display.

[0025] Hereby it is easy from inside of the car to check, that the time, which on the parking disc front is indicated as the initial time of parking, is calculated on basis of a correct clock time.

[0026] In a preferred embodiment the dataprocessor is configured to receive input from the movement sensor, when said movement sensor changes state from being subject to movement to a stationary state;
 where the dataprocessor is configured to correlate the actual time to an initial time of parking, when the dataprocessor receives input from the movement sensor on that the parking disc changes state to be in a stationary state; and

where the dataprocessor is configured to convert the initial time of parking to a modified initial time of parking; and where the dataprocessor is configured to display the modified initial time of parking on the first display of the parking disc;
 where the modified initial time of parking is defined as the time of expiration of the quarter of an hour, in which the initial time of parking took place;
 where the time, where the parking took place, is defined as the time, when the dataprocessor receives input, that said parking disc changes to enter a stationary state.

[0027] Hereby the parking disc is capable of sensing, when the car is parked and based thereon is displayed an according to the applicable law projected modified initial time of parking. Hence, when parking, the driver does not need to worry about setting the parking disc.

[0028] The display of the parking disc and the display design follows applicable national law. This does not put any hindrance on the visual appearance of the parking disc, allowing that the design of the parking disc in an embodiment forms a cube with a length, height and width.
 In yet another embodiment the sides are formed spheric, curved or concave. In yet another embodiment the housing of the parking disc is formed as a cylinder with a circular formed, elliptical cross section. In yet another em-

bodiment the housing of the parking disc is egg formed, either as a whole or as a section of an egg formed unit.

[0029] In a preferred embodiment the parking disc comprises a circular disc. Hereby the electronic parking disc achieves a desired visual expression, as e.g. similar to the old fashioned parking discs made from plastic or paper.

[0030] In a preferred embodiment the solar cell or the solar cells are arranged along the outer periphery of the parking disc or in sections between the mid of the disc and the outer periphery of the disc. Hereby is achieved that an adequate amount of space, which the solar cells take up, can be allocated to the solar cells in these areas.

[0031] Especially advantageous are the solar cells arranged on the surface of the parking disc in such a way that the graphical printing in form of numbers, text or pointer lines does not overlap the active surface of the solar cells.

[0032] In a preferred embodiment, the solar cell or the solar cells are arranged in an orientation radially going out from a center point on the parking disc and running towards the outer periphery of the parking disc. The solar cell or the solar cells are arranged over the full length or over a section of the length of the parking disc radius.

[0033] In yet another preferred embodiment, the solar cell or the solar cells are arranged distributed in a panel, which panel is formed as a circular shaped disc adapted for being mounted around or in front of the parking disc display. The circular shaped disc is in an embodiment equipped with a window through which it is possible to monitor the front display of the parking disc. In yet another embodiment, the window is adapted for receiving or encloses the display of the parking disc. Hereby a simpler and more affordable production as well as a more robust, thin and elegant design is achieved.

[0034] In a preferred embodiment, the parking disc is designed to, via the solar cells, to detect, whether sufficient ambient light is available to completely supply the parking disc with current from the solar cell/solar cells; and where the parking disc is designed to on the basis of the detection to shift between being supplied from an electrical energy storage in the form of a capacitor or a battery or from the solar cell/solar cells. Hereby the battery can be spared for load under circumstances where current from the solar cells can supply the necessary amount of electrical energy for the electronic parking disc. Thus, the electrical energy storage can be considered as a back up solution for the solar cell/solar cells.

[0035] In a preferred embodiment, the parking disc is arranged in such a way as to utilize the voltage generated by the solar cell/solar cells for charging the battery. Hereby it is secured, that the battery continues to have an adequate or sufficient capacity to supply the electronic parking disc.

[0036] In a preferred embodiment the parking disc front comprises a clock face comprising the numbers from 1 to 12 arranged in a circle; where each pair of adjacent numbers are arranged mutually with an angle difference

of 30°; where each interval between two adjacent numbers are divided into four parts, in that this interval comprises 3 separation lines or separation points or the like; where the first display comprises a LCD-display, being designed to show the modified initial time for the parking; since a separation line or the like at the LCD-display can indicate the modified initial parking time on the clock face, since this separation line or the like is pointing to one of the numbers from 1 to 12, or on one of the three separationlines or separation points or the like arranged between two adjacent numbers on the clock face. This embodiment gives an easy indication of the modified initial time for parking on the clock face while still being easily readable.

[0037] In an embodiment, the solar cell or the solar cells are arranged directly in the center point of the parking disc display. The center point forms the "fulcrum" for the separation lines or the minute pointer out towards the periphery of the clock face.

[0038] The solar cell or the solar cells are in yet another embodiment integrated directly into the parking disc display. In yet another embodiment, the solar cell or the solar cells are arranged on top of the parking disc display.

[0039] In an embodiment the solar cell or the solar cells are arranged on the back of the parking disc or on the housing of the parking disc or on the rim of the parking disc or housing of the parking disc, at least partly over the travel of the rim. An arrangement of the solar cell/s that face towards the car interior will also be capable of generating electrical energy.

[0040] In an embodiment, the solar cell or the solar cells are arranged embedded into the parking disc housing.

[0041] In another embodiment, the solar cell or the solar cells are arranged on a unit, which forms a counterpart to the housing of the parking disc, as e.g. a part forming the back of the housing.

[0042] In yet another embodiment, the unit forms a lid arranged on the housing of the parking disc. In an embodiment, the lid is a battery lid. The lid is in an embodiment designed to enclose an energy storage in the form of a capacitor and/or a primary and/or a rechargeable battery. This has the advantage that a parking disc can be produced in a standard embodiment, where the parking disc very simply can be equipped with a suitable autonomous power supply.

[0043] In yet another embodiment, the battery lid is equipped with electronics that performs the switching between the powersupply from the solar cell or the solar cells or an energy storage in the form of a capacitor or a battery.

[0044] In an embodiment, the battery lid is equipped with electronics, which are designed for charging an energy storage in the form of a capacitor or a rechargeable battery.

[0045] In an embodiment, the battery lid of the parking disc or the parking disc, e.g. on the housing, equipped with a connector designed for receiving an external pow-

er supply, e.g. for receiving a supply of 12/24 volt through the cabling system of the vehicle, for maintaining the operation of the parking disc or for charging of the energy storage of the parking disc.

[0046] In a preferred embodiment the front of the parking disc comprises an adhesive for attaching the front to the inner surface of a vehicle wind shield. Hereby an easy mounting of the electronic parking disc on the inner surface of the wind shield of a vehicle is achieved.

[0047] In a preferred embodiment, the battery is of one of the types lithium-ion, NiMH, NiCd, Li-polymer, and where the battery shape can be in any shape. Such batteries are easy aquireable while they do not take much space up.

[0048] In a preferred embodiment, the one or those solar cells are of the type monocrystalline, polycrystalline or amorphous solar cells. Such types of solar cells are easy aquireable while being relatively affordable.

[0049] In a preferred embodiment the solar cell or the solar cells are hidden behind a transparent or semitransparent clock face that forms a front.

[0050] In a preferred embodiment, the parking disc does not comprise a build-in battery lid, which gives a simpler and thus more affordable production proces.

[0051] In a preferred embodiment, the one or those means of inputs for setting the parking disc includes soft touch feel-input means. Hereby the input to settings of the electronic parking disc is made easier.

[0052] Now referring to details of the drawing when it regards the illustrating of preferred embodiments of the invention, fig. 1a shows an electronic parking disc 100 according to the invention. Fig. 1a shows a perspective view of the front 2 of a circular electronic parking disc 26,100. The front 2 includes a clock face 30, which by evenly spaced distances has arranged the numbers from 1 to 12 in a circle. Each hour, meaning each curved distance between two adjacent numbers, is divided into four quarters, in that the clock face 30 between every two adjacent numbers includes three separation lines 34, which in this way emphasizes the quarter separations 32, that exist between two full hours.

[0053] Closer to the centre of the circular clock face is seen a first display 6 in form of a LCD-display 36. Over a control system embedded into the electronic parking disc the actual initial time of parking BFP, as explained below, is detected. The actual initial time of parking BFP can optionally be modified to a modified initial time of parking MBFP by the parking disc control system. In fig. 1a is shown on the LCD-display 36, via a line 38 on the LCD-display, that the modified initial time of parking MBFP is 13:30.

[0054] Alternatively the modified initial time of parking MBFP could be shown digitally by a time specified in numbers, such as XX:YY, where XX specify the hours, and where YY specifies the minutes.

[0055] In those sections of the parking disc, where the numbers from one to twelve are arranged is also arranged 12 solar cells 24, which serves to deliver electrical

voltage to those parts of the electronic parking disc that needs a voltage supply. Hereby is achieved, that the electronic parking disc does not run out of power, since the battery embedded in the electronic parking disc can be subject to an electrical charging, each time the parking disc is exposed to sun light. Along the parking disc periphery is arranged four adhesives 40, which secure that the parking disc can be adhered to the wind screen of a vehicle.

[0056] Fig. 1b shows in a perspective view the back 4 of the electronic parking disc 100 shown in fig. 1a. On the back of the parking disc 100 a second display 8 is seen, which shows the actual time AT. Further more means 10 for setting the watch and for manual setting of the initial parking time is seen.

[0057] Fig. 2 shows schematically the functioning of the electronic parking disc 100 according to the invention. The parking disc 100 includes an embedded electronic circuit. This circuit includes a dataprocessor 14, which is coupled to a data storage unit 16. The data storage unit 16, which can be integrated in the dataprocessor 14, holds embedded a control system 20. Information can be exchanged between the dataprocessor 14 and the data storage unit 16 as indicated by the arrows. The dataprocessor is supplied with a voltage from a battery 22. Also the dataprocessor is connected to one or more solar cells 24. For the sake of simplicity in fig. 2, only the connection from respectively the battery 22 and the one or more solar cells 24 is shown. Other units can also be connected to the battery and/or the solarcells 24.

[0058] The dataprocessor 14 is also connected to an electronic clock 18. The clock can possibly be embedded in the dataprocessor 14.

[0059] The dataprocessor 14 is connected to a first display 6, which is designed to show an initial time for a parking BFP, possibly modified to a modified initial time for a parking MBFP by projection forward to the closest quarter such as you, prescribed by the law, rightfully should be able to do.

[0060] The dataprocessor 14 is connected to a second display 8, which is designed to show the actual time AT

[0061] Means for input 10 is provided in order to make it possible for the user or the driver to set the clock and the calender in order to secure, that the second display shows the correct time.

[0062] Finally, the electronic parking disc includes a movement sensor 12. The movement sensor is designed to sense, when the vehicle changes state from a state of movement to a stationary state, such as being characterized by a parking of the vehicle.

[0063] The electronic parking disc works in this way, that when the watch is correctly set by the means for input 10 and the vehicle is parked, the movement sensor will sense, that a change is going on in the state of the parking disc from a state of movement to a stationary state. Information on this change in state are forwarded to the data processor 14, and the control system 20 will then ensure, that the actual time AT is logged and that

this time are related to the initial time for a parking MBFP. This time will by the control system be modified to a modified initial time for parking MBFP, in that the law allows, that you when parking projects forward your actual parking time to the first coming quarter of an hour. The control system will then display this time MBFP on the first display, viewable from outside, if the parking disc is mounted in or in close proximity of the wind screen of a vehicle with the front of the parking disc facing towards the wind screen.

[0064] In that the electronic parking disc is equipped with solar cells, it will be able to avoid, that the battery runs out of current, with the result that the parking disc can not show an initial time for parking, and thereby is achieved, that the law is not violated, conditionally depending on compliance with the specified parking limitations. In addition, a prolonged time between every required battery change can be achieved.

[0065] This opportunity is not present with the known electrical parking discs, including a battery but not one or more solar cells.

[0066] Fig. 3 is an exploded view that shows the design of an electronic parking disc according to the invention. The figure shows the parking disc seen from the front. The clock face 30 is manufactured from a transparent material with a printing, with separation into periods of time, as e.g. quarters of an hour, as well as numbers indicating full hours. The electronic parking disc further includes a printed circuit board 50 on which the electronic components are arranged, preferably on the side of the printed circuit board that is not seen in the figure. On the other side of the printed circuit board, which is visible in figure 3, is seen a display 6 from which the parking disc and the setting appears. Put notice to the line that forms the minute pointer 38, MBFP.

[0067] Figure 4 further shows a solar cell panel 55, 60 on which is arranged one or more solar cells 24. The solar cell panel 55, is a circular disc manufactured out of a plastic material on which one or more solar cells 24 are arranged. As it appears, the solar cells 24 are arranged radially going out from the center point of the disc in such a way that it is avoided that the printing in form of lines and numbers are arranged on top of the active surface of the solar cells 24 when the clock face is mounted in front of the solar cell panel 55. Notice that the solar cell panel 55 has a hole 57 in the center, that serves as a window through which the first display 6 can be seen.

[0068] The solar cell panel 60 is an alternative embodiment with one or more solar cells 24 which are specially designed for being arranged in the center of the parking disc. The clock pointer 38, MBFP can in an appropriate way be designed as a line with a circular disc, which serves as the point of rotation for the pointer what also appears from figure 1a. The solar cell panel can be arranged on top of the first display 6 or be integrated directly into the first display 6 as a custom design component. The advantages are obvious when it comes to a simple production of the parking disc according to the invention

with further economical advantages and a low height of the construction that brings a slimmer design.

[0069] The solar cell panel 55, 60 can be designed as a printed circuit board where one or more solar cells 24 are mounted. More appropriate, the solar cell foil, which is the primary in the solar cell 24 is arranged directly on and connected on a disc with the wanted dimensions for direct attachment into the product, with the focus on low height of the construction and a simpler product.

[0070] The electronic parking disc 100 as shown in figure 3, comprises a housing in the form of a back 70, that has been designed to receive the component side of the printed circuit board 50. Further is included a frame 75, that has been designed for receiving the printed circuit board 60 on that side where the first display 6 is mounted. The frame 75 has a window 77 such that the first display 6 can be seen through the window 77 in the frame 75. The frame 75 is furthermore designed for receiving a solar cell panel 55 and a clock face 30 and fix the solar cell panel 55 in position in relation to the clock face 30 in such a way that the clock face 30 printing does not overlap the active areas of the solar cells 24 arranged on the solar cell panel 55. Further, the solar cell 55 and the clock face 30 is equipped with carve outs 78, 79, that serves as indicators for mounting of the clock face, such that the printing matches the position for the line on the LCD-display 38, MBFP, which points out the initial time of parking. The unit is assembled and locked together with mutually functioning locking mechanisms designed on the parts that forms the electronic parking disc 100. Since the lifetime of the battery is long because of the contribution of electrical energy from the solar cells 24 the mutually functioning locking parts can be formed in such a way that the housing will be damaged if the housing is tried to be opened. Hereby it can be made evident that a not authorised person has attempted to open the device in order to make a modification or a repair whereby the manufacturer warranty of a defective device can lapse.

Referencenumbers for the drawing:

[0071]

| | |
|----|--|
| 2 | Front of parking disc |
| 4 | Back of parking disc |
| 6 | First display |
| 8 | Second display |
| 10 | Inputmeans for setting of parking disc |
| 12 | Movement sensor |
| 14 | Data processor |
| 16 | Unit for Data storage |
| 18 | Electronic clock |
| 20 | Control system |
| 22 | Battery |
| 24 | Solar cell |
| 26 | Circular disc of electronic parking disc |
| 30 | Clock face |
| 32 | Quarter separations |

| | |
|------|---|
| 34 | Separation line or separation dot on clock face |
| 36 | LCD-display |
| 38 | Line on LCD-display |
| 40 | Adhesive on front of electronic parking disc |
| 50 | Printed circuit board |
| 55 | Solar cell panel |
| 57 | Hole |
| 60 | Solar cell panel |
| 70 | Back of housing |
| 75 | Frame |
| 77 | Window |
| 78 | Carve out |
| 79 | Carve out |
| AT | Actual time |
| BFP | Initial time (begin) for parking |
| MBFP | Modified initial time for parking |
| 100 | Electronic parking disc |

Claims

1. Electronic parking disc (100) for a vehicle;
where the parking disc comprises a front (2) and a back (4);
where the front comprises a first display (6) serving for indicating a time for initiating the parking;
where the back comprises a second display (8) serving for indicating the actual time (AT);
where the back comprises one or more input means (10) for setting the parking disc;
where the parking disc comprises a movement-sensor (12), capable of sensing whether the parking disc is subject to movement or is stationary;
where the parking disc comprises a data processor (14) and an associated unit for data storage (16);
where the parking disc comprises an electronic clockwork (18);
where the data storage comprises a control system (20) for controlling the function of the parking disc;
where the parking disc comprises a battery (22) for the supply of electrical voltage to the parts of the parking disc that requires a voltage supply;
where the parking disc is **characterized by**, that the parking disc comprises one or more solar cells (24) for the supply of electrical voltage to the parts of the parking disc that requires a voltage supply.
2. Electronic parking disc according to claim 1, where the data processor (14) is configured to show the actual clock time (AT) on the second display (8).
3. Electronic parking disc according to claim 1 or 2, where the data processor (14) is configured to receive input from a movement sensor (12), when said movement sensor changes state from being subject to movement to a stationary state;
where the data processor (14) is configured to correlate the actual time (AT) to an initial time of parking

(BFP), when the dataprocessor receives input from the movement sensor (12) on that the parking disc changes state to be in a stationary state; and where the data processor (14) is configured to convert the initial time of parking (BFP) to a modified initial time of parking (MBFP); and where the data processor (14) is configured to display the modified initial time of parking (MPFP) on the first display (6) of the parking disc;
where the modified initial time of parking (MTFP) is defined as the time of expiration of the quarter of an hour, in which the initial time of parking took place; where the time (BFP), where the parking took place, is defined as the time, when the dataprocessor receives input, that said parking disc changes to enter a stationary state.

4. Electronic parking disc according to any of the preceding claims, where the parking disc includes a circular disc (26).
5. Electronic parking disc according to claim 4, where the solar cell or the solar cells (24) are arranged along the outer periphery of the parking disc or where the solar cell or the solar cells (24) are arranged in sections between the mid of the disc and the outer periphery of the disc.
6. Electronic parking disc according to any of the preceding claims, where the the parking disc is designed to, via the solar cells (24), to detect, whether sufficient ambient light is available to completely supply the parking disc with current from the solar cell/solar cells (24); and where the parking disc is designed to on the basis of the detection to shift between being supplied from a battery (22) or from the solar cell/solar cells (24).
7. Electronic parking disc according to any of the preceding claims, where the parking disc is arranged in such a way as to utilize the voltage generated by the solar cell/solar cells (24) for charging the battery (22).
8. Electronic parking disc according to any of the preceding claims, where the front of the parking disc (2) comprises a clock face (30) comprising the numbers from 1 to 12 arranged in a circle; where each pair of adjacent numbers are arranged mutually with an angle difference of 30°; where each interval between two adjacent numbers are divided into four parts (32), in that this interval comprises 3 separation lines or separation points (34) or the like; where the first display comprises a LCD-display (36), being designed to show the modified initial time for the parking (MBFP); since a separation line or the like (38) at the LCD-display can indicate the modified initial parking time (MBFP) on the clock face (30), since

this separation line (38) or the like is pointing to one of the numbers from 1 to 12, or on one of the three separation lines or separation points or the like (34) arranged between two adjacent numbers on the clock face (30).

5

9. Electronic parking disc according to any of the preceding claims, where the parking disc front (2) comprises an adhesive (40) for attaching the front to the inner surface of a vehicle wind shield. 10
10. Electronic parking disc according to any of the preceding claims, where the battery (22) is of one of the types lithium-ion, NiMH, NiCd, Li-polymer, and where the battery shape can be in any shape. 15
11. Electronic parking disc according to any of the preceding claims, where the one or those solar cells (24) are of the type monocrystalline, polycrystalline or amorphous solar cells. 20
12. Electronic parking disc according to any of the preceding claims, where the solar cell or the solar cells (24) are hidden behind a transparent or semitransparent clock face (30) that forms a front (2). 25
13. Electronic parking disc according to any of the preceding claims, where the parking disc (100) does not comprise a build-in battery lid. 30
14. Electronic parking disc according to any of the preceding claims, where the one or those means of inputs (10) for setting the parking disc includes soft touch feel-input means. 35
15. Electronic parking disc according to any of the preceding claims, where the solar cell or the solar cells (24) are arranged on a unit that forms a counterpart for the parking disc (100) housing. 40

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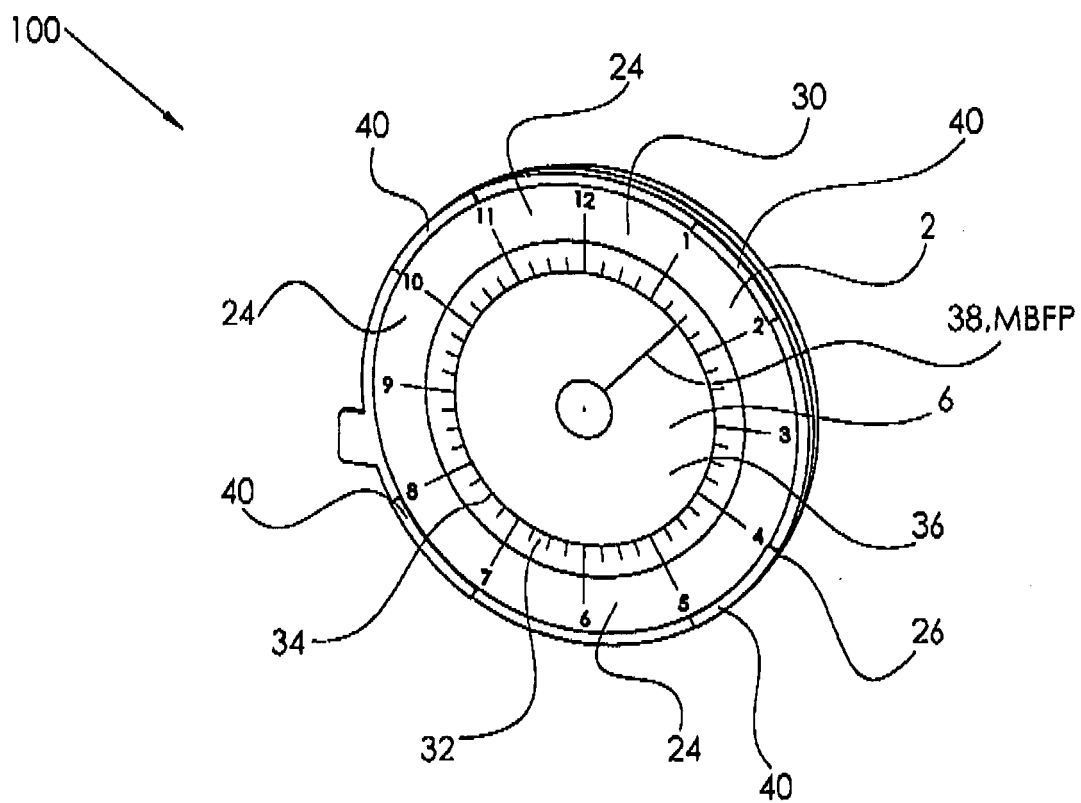


Fig. 1a

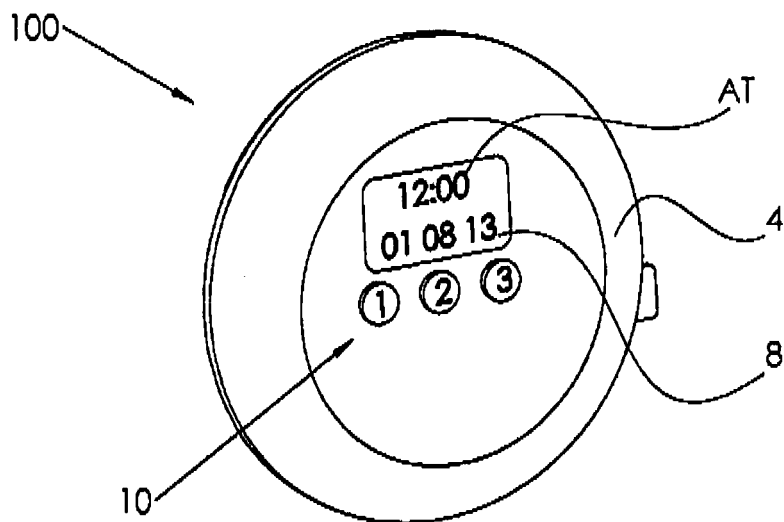


Fig. 1b

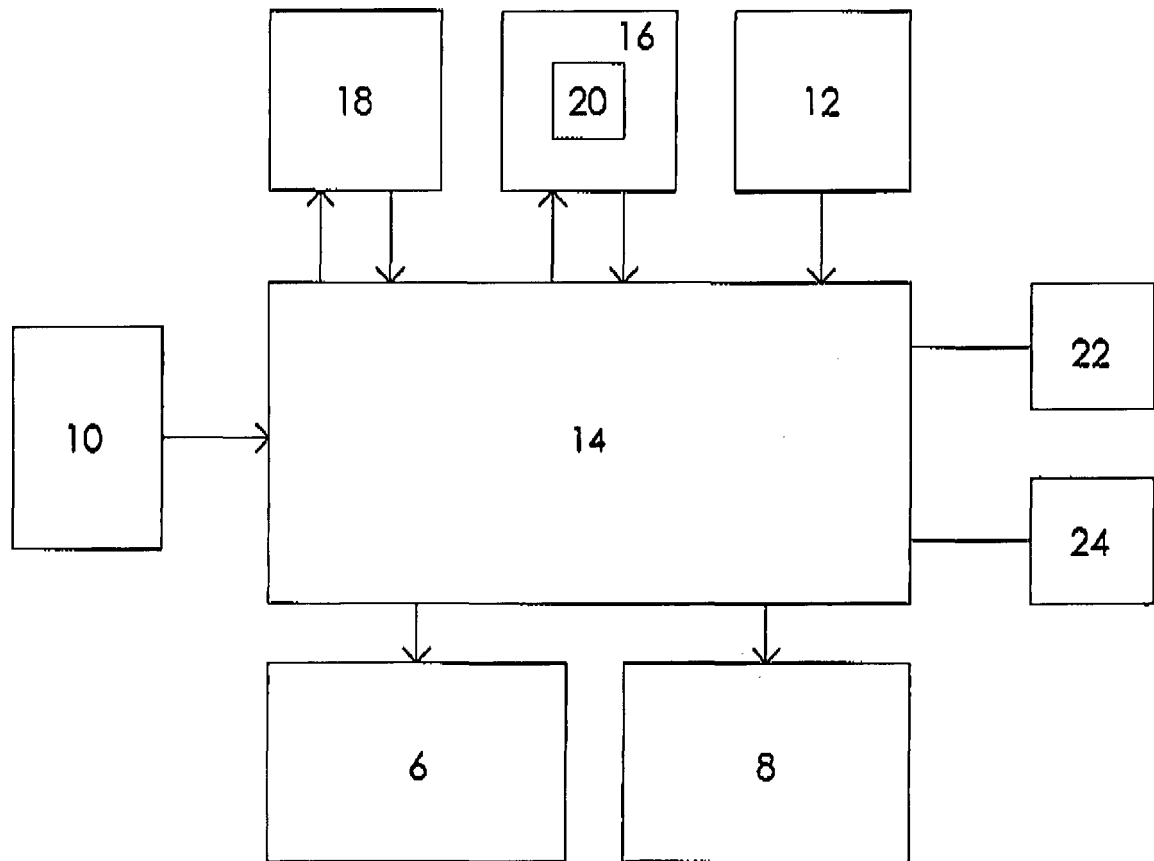


Fig. 2

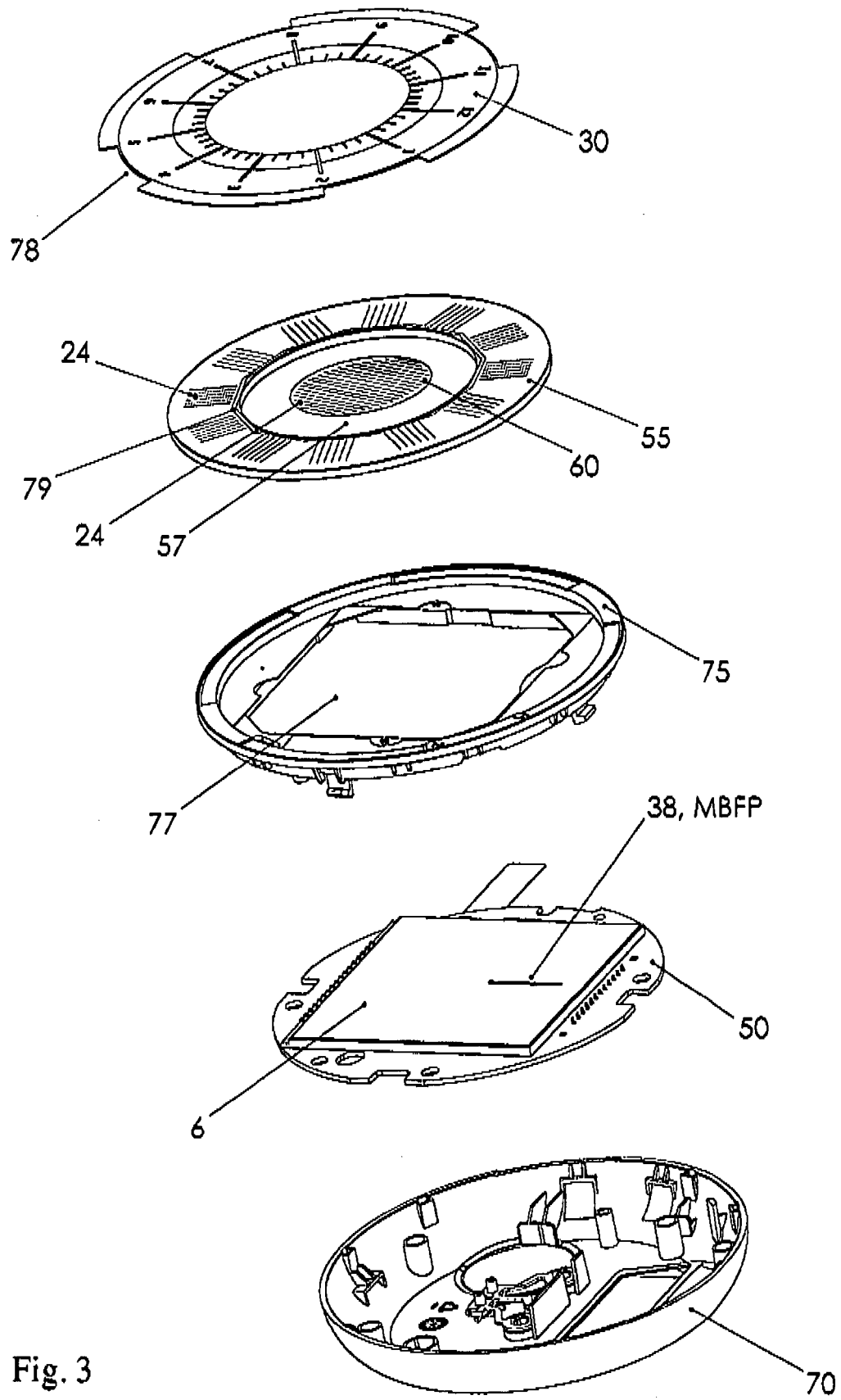


Fig. 3



EUROPEAN SEARCH REPORT

 Application Number
 EP 15 00 2242

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