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(54) Title: ELE TRIC FUNBOARD 360° SKATEBOARD

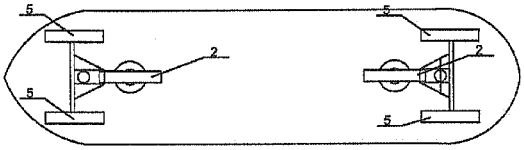

Fig. 1

(57) Abstract: The object of the present invention is that to realize a new typology of skateboard, with a motor and remote control, with 6 wheels, three in the front and three in the rear. The central wheels are pivoting and with a motor. The motors one for each wheel are last generation motor said "Hub brushless". The other four wheel mounted on the front and rear trolley, can be fixed or pivoting. The motors are independent and separately managed by remote controls, with separate channels, and fed by lead gel and lithium ions as the Life P04.

ELECTRIC FUNBOARD 360° SKATEBOARD

DESCRIPTION

STATE OF THE ART

Skateboarding is a sport born with the first boards with wheel in the '50s in California. The boards generally with four wheel were sent in downhill and driven by the person standing on the same board. In the following years the materials of the boards and of the wheels have improved and many new kind of trolleys have been utilized to allow a better control and games possibility. A skateboard is composed by various components: the board (deck) the trolleys (trucks) the wheels and the bearings. The board (deck) is generally composed by seven or nine layers of wood , and its shape remembers a surf or a snowboard, and can vary on the base of the applications, it is slightly hollw for a better control. The nose and the tail differ for length and inclination. For some specialities there are aluminium, fibreglass or Kevlar to increase the stiffness, resistance and weight reduction. The trucks, usually in aluminium allow to give direction to the deck by the movements of the body weight. To that are connected the wheels through some sphere bearings on the base of the type of rubber that allow a soft or hard steering capacity. Between the deck and the bearings there are som rubber sticks that soften the shocks and movements after the acrobatic manoeuvres (tricks).

The wheels are actually in poliurethan. Nowdays there are various king of skateboard: longboard, waveboard, snakeboard, slalomboard, custerboard, lowboard , freeboard and electric. All these decks have different characteristics: longboard have longer board, bigger trolley, bigger wheels. Wave board : the two platforms are linked by a torsion bar that contains a spring. A poliuretan wheel is connected to each platform with a rotating pivot , so that each whee can drive independently. Snakeboard , two decks with each a two wheels trolley, a separation bar that connects the decks ; by moving the feet it is allowed to the decks to rotate around the connection pivot of the separating bar and to drive on the skateboard. Slalomboard: a tin and small deck, with nearer trolleys, and the wheels are smaller, usually the table is convex. Casterboard: one of the two trolleys movable, and allows the advancing of the table by the weight movement of the skateboarder. Flowboard: a deck with two trolleys with seven wheels each, it can be inclined by twenty degrees more than any other skateboard. Freeboard: a deck with two more pivoting wheels under the board with a specific geometry: this six wheel configuration, with a dept (of corner) on one or on the other side, emulates faithfully the snowboard conduction. Electric: it works with batteries it has a remote control, and with brakes and the motor drives one of the rear wheel by a toothed belt.

DETAILED DESCRIPTION OF THE INVENTION

It is defined skateboard a board with wheels with whom it is possible to exercise the skateboarding a sport born in California during the 50's. the various kind of skateboard are different and with them also the specialities that have been created. The Psycoboard 360° object of this invention is a skateboard that has the characteristics of various specialities. It is a skateboard fed by two electric motors and has six wheels as the freeboard, three in the front and three at the rear. The particularity and the novelty of this board is that the pivoting propulsion wheels are the central ones; the wheela are connected to the battery, itself rotating at 360°, set inside the board. The Psycoboard 360° is made of two boards of equal form and measurement connected one another with a space of about 15 centimetres creating a sandwich. Inside the two boards there are the battery packs and all the electronic controls comprising the radio sensors, receiving the signals of the remote controls. The battery and the electronics are positioned near the connection of the trolleys, then both in the front and rear side; they are positioned on free rotating plates on 360° with respect to a vertical axis od the board, since they are fixed on spherical circular bearings. This free rotation allows to the batteries to be connected to the electrical motors, without that the electrical cables can get twisted.
The cables of the batteries go through the hostel of two forks to which the motors are connected. The motors are the hub motors brushless, of the last generation. The movement is then directly transmitted to the hub of the wheel . The forks are set on conic circular bearings to support both axial and radial efforts. The other two wheels of the other two front and rear trolleys can be fixed or also pivoting on the base of the kind of Psycoboard 360° that is desired. With fixed wheels the Psycoboard 360° behaves as a Freeboard, but also with a motorized propulsion and the to be utilized both downhill and uphill. With pivoting wheels the Psycoboard is free to move in any direction, given to the movement of his conductor, (Psycoskater) and by the independent propulsion of its motors. The eventual version with one only motor on the central pivoting wheel hub on the front or on the rear is a less performing version. To make independent both the motors by the utilization of different frequencies of various remote control, makes the driving experience very special. It is possible indeed by accelerating or braking by one or the other motor, to correct the direction set to the Psycoboard 360° so improving the driveability and the safety; indeed if the rotation of the table is not balnced, it will be sufficient to brake on that side and accelerate on the other so that to bring the board on the other desired side. Naturally this possibility to rotate on 360° on respect of the vertical axis gives the possibility to the driver to enjoy on various spectacular exercises. On the upper board, to improve the control and safety, are installed two fastenings; the conductor can choose to utilize or not simply by connecting or disconnecting them from the board, so to obtain a total control of the Psycoboard 360°. On the ankle of the conductor it is provided a

lace connected to a key that allows, in the case of not voluntary fall from the table, the cut-off of the alimentation of the motors. The motors have electromagnetic brake with regenerative stop. Any motor has the possibility to be disengaged by the wheel so to let it free to rotate without any effort; this allows the driver to choose which of the motors to utilize. Being independents the batteries dedicated to each motor, it will be possible to choose if utilizing one only motor and one only battery so to gain a better autonomy .

Applications

This new kind of Skateboard will be utilized on any road, on the base of the wheels chosen.

Being an electrical vehicle it has no limitation on circulation on limited traffic road being a no pollution vehicle.

FIGURES DESCRIPTION

Figure one illustrates the batteries in the setting inside the two boards fixed on rotating plates.

Figure two represents the central wheels with the motor on the hub.

Figure three shows the conic rolls circular bearings, for axial and radial efforts, on which are set the rotating plates on which are set the forks of the central propulsion wheels.

Point four shows the circular spherical bearings on which are set the rotating brackets on which the batteries are mounted.

Point five shows the classical skateboards' wheels that can be connected to the trolleys or pivoting as formerly described.

Point six represents the adjusting laces for the feet for various sizes of shoes.

WAY OF REALIZATION OF THE INVENTION.

The realization of the present invention is of an easy execution and comprises the following components:

1) two boards of about 350 mm. X 900 mm. usually of wood (seven Canadian maple-three layers)
2) measured rotating plates on the base of wheel, motors and batteries chosen.
3) Two brushless hub-motors of a chosen power on the base of the application to realize and on the base of the laws of the construction country mounted centrally as represented in table 1 figure two.
4) Two trolley and four forks and plates for pivoting wheels as in point number five.
5) Two conic rolls circular bearing apt for axial and radial efforts to be mounted on the plates of the forks of the propulsion wheels.
6) Two spherical circular bearing to be mounted on the batteries allocated plates.
7) A covering stripe of the empty space between the two boards.

8) Two laces for the foot to be allocated on the upper board.
9) Two covers for the battery space to allow the maintenance from the upper board.
10) A security system, with a plastic key with fast unlock , to be laced on the driver leg to eliminate the alimentation of the motors in case of non voluntary fall from the board.
11) Two electronic sheet for the motors' control, for the regenerative brake and for charging-discharging of the batteries and for the radio communication for the remote controls.
12) Two remote controls with independents radio channels for the controls of the motors, set on the central wheels hubs.
13) All the fixings will be realized with auto-blocking screw and nuts.

Applying laws

The Psycoboard 360° will respect all the laws on the utilized materials, on the electrical parts, the road circulation laws and the anti-fire laws on the base of the countries for which the distribution in foreseen.

CLAIMS

1. Skateboard characterized by the fact that the propulsion is made by two independent electrical motors, fixed on the hubs of the two central internal wheels, that are positioned lower than the wheels mounted on the front and rear trolleys as shown in point n. 2 f the figure n. 1 and n. 2.
2. Skateboard characterized by the fact that the two electrical motors are managed by means of two separated and independent remote controls.
3. Skateboard characterized by the fact that the the two electrical motors are mounted on the hubs of the two central wheels fixed to two independent brackets pivoting at 360°, the brackets being connected to the lower part of the board by means of a plate on circular bearings with cone rollers.
4. Skateboard characterized by the fact that the two electrical motors are fed by two identical independent batteries, fixed on two plates rotating at 360°, so to allow the whole 360° rotation of the same electrical motors, avoiding the hindrance and potential winding up of the electrical cables; the plates being fixed on the lower part of the board by means of circular spherical bearings.
5. Skateboard characterized by the fact that the propulsion can be supplied by both the electrical motors, or by only one of them, thus saving the charge of one of the two batteries and improving the range and the performance on the road.
6. Skateboard characterized by the fact that the two batteries are positioned in two properly dimensioned seats, inside a kind of sandwich, composed by two tables that protect them by the water or road debris, allowing acrobatic performance and tricks, peculiar of the skateboarding.

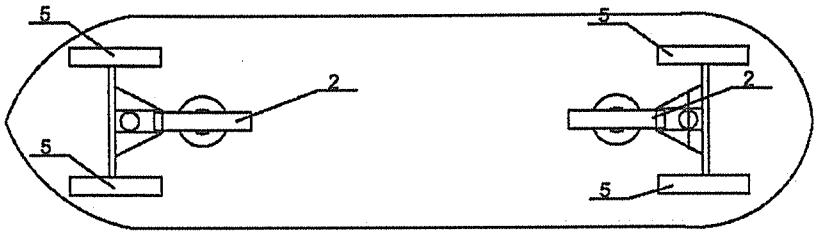

Fig. 1

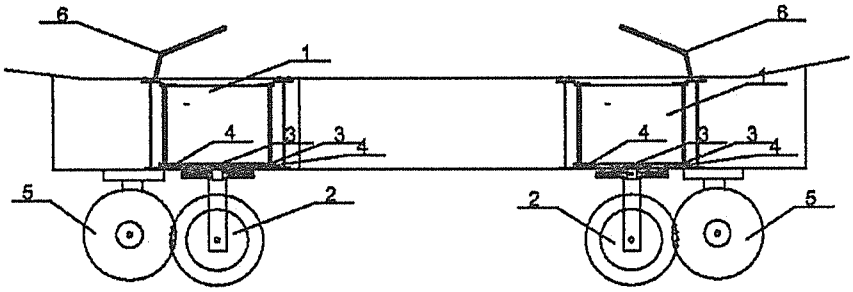

Fig. 2

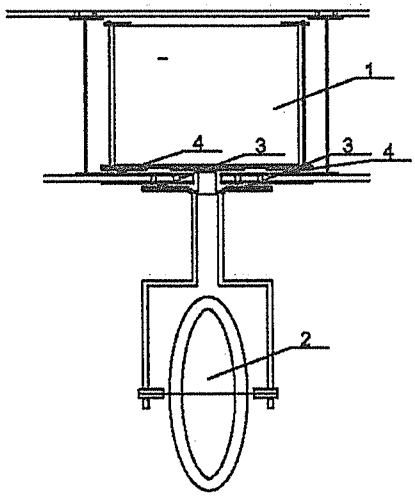

Fig. 3

INTERNATIONAL SEARCH REPORT

International application No
PCT/IT2015/000165

A. CLASSIFICATION OF SUBJECT MATTER
INV. A63C17/12
ADD. A63C17/01

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)
A63C

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)
EPO-Internal

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 2013/175775 A1 (BERMAL JAY VELITARIO [US]) 11 July 2013 (2013-07-11) abstract; figures 1-20	1-6
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[X] Further documents are listed in the continuation of Box C.

[X] 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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Date of the actual completion of the international search	Date of mailing of the international search report
4 November 2015	12/11/2015

Name and mailing address of the ISA/	Authorized officer
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INTERNATIONAL SEARCH REPORT

International application No
PCT/IT2015/000165

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

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INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No
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