(19) Europäisches Patentamt
European Patent Office
Office européen des brevets

(11) **EP 3 159 050 A1**

(12) EUROPEAN PATENT APPLICATION

(43) Date of publication:
26.04.2017 Bulletin 2017/17

(21) Application number: **16382448.5**

(22) Date of filing: **29.09.2016**

(51) Int Cl.:
A63C 17/12 *(2006.01)* ***A63C 17/26*** *(2006.01)*
A63C 17/01 *(2006.01)*

(84) Designated Contracting States:
AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR
Designated Extension States:
BA ME
Designated Validation States:
MA MD

(30) Priority: **22.10.2015 ES 201500734**

(71) Applicant: **Quesada Barreto, Carlos Javier**
38356 Tacoronte - Tenerife (ES)

(72) Inventor: **Quesada Barreto, Carlos Javier**
38356 Tacoronte - Tenerife (ES)

(74) Representative: **Carvajal y Urquijo, Isabel et al**
Clarke, Modet & Co.
Suero de Quiñones, 34-36
28002 Madrid (ES)

(54) ECOLOGICAL SYSTEM OF BOARD WITH WHEELS MECHANICALLY DRIVEN, ECOSKATEBOARD

(57) Ecological system of board with wheels mechanically driven, Ecoskateboard, comprising a rigid board with four wheels located two in the front axle and two in the rear one, having in its front axle a rigid bar (4) that eases the displacement of the user, so as when he pulls the bar rearward no movement is produced but when the bar is pulled forward, the transmission of the movement to the axles is produced materializing in the forward displacement of the board.

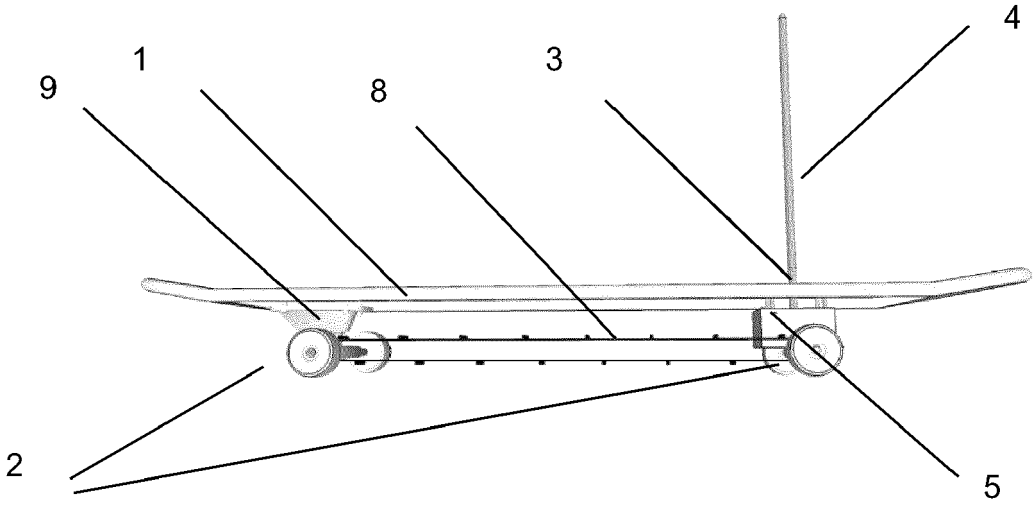

FIG. 1

EP 3 159 050 A1

Description

TECHNICAL SECTOR

[0001] Due to the nature of the present invention, this system of board with wheels similar to a skateboard can be fitted in the transport sector as a mechanism that allows in a ecological and clean manner the displacement of the user, it can also be used in the recreational and sport sector, where the user by using this model can be employed as a toy or medium to practice sport. This system allows the displacement in a safer way than other similar structures as traditional skateboards or scooters and is easy to carry and store.

BACKGROUND OF THE INVENTION

[0002] Nowadays, it is worldwide known the concept of skateboard, represented as a board with wheels that through the impulse of one of the foot of the user, allows the displacement along a surface.

[0003] Starting from this original ideal, there are several patents involving modifications to the initial model, models consisting in improved boards, boards with brakes, with sails included for an easier displacement, improvement in the rolling systems...There is also a clear derivative of the skateboard, the scooter, whose main goal is to facilitate the use and the equilibrium of the user on the board. As an example of this wide variety, several patents and models that refer to these models and variants of skateboards and scooters are indicated: ES 1 019 462 U, ES 1 058 226 U, ES 0242653 U, ES 2344918 T3, among others.

[0004] It is recorded multiple applications and adaptations existing referring to boards with wheels in order to achieve design improvements, greater safety for the user or that he has to do less effort for his displacement.

[0005] The main problem common to all these systems is that they require the effort of the user to propel, depending on the ground the displacement can be unfeasible or require investing a huge amount of energy in it. Moreover a simple board with wheels involves user's equilibrium, who may fall and suffer injures and chafing derivate of the use.

[0006] The system presented in this model incorporates a mechanism formed by a light metal bar located in between the front wheels that will allow the displacement of the board based on a traction system that does not require any effort by the user.

[0007] Analysing the available models at both the national and European level, there is no system of board with wheels which bases its displacement on a traction system with timing belt that simplifies its use and provides greater safety to the user and moreover is totally ecological.

EXPLANATION OF THE INVENTION

[0008] The invention is based on a traction mechanism located on the front wheels with the following operation: both axles, the ones joining both the front wheels and the rear ones are attached by a timing belt (either in rubber or metal) that allows that both axles can move at the same time. The traction is exerted by another mechanism located only on the front axle absorbing the impulse generated by the manual traction bar (as specified in Figure 5) that in the backwards movement it turns in vacuum and in the movement forward the user generates an impulse with his arm which is shifted to the traction mechanism and in turn, it is transferred to the mechanism on the front axle moving the timing belt that also moves the rear axle, producing an immediate impulse to the turn of the four wheels.

[0009] This simple mechanism allows that the vehicle moves without the need to remove the foot outside of it, maintaining much more stability and requiring less strength to displace. Under both axles a spring of rubber will be implanted that allows the turn of the vehicle when the occupant presses with his body weight one of the lateral.

[0010] The traction bar can be introduced and removed depending on the interest of the occupant to perform the traction, it can also be used as a support element to do somersault and other games. In a simple way it can be introduced again in the hole where it is located with a small rotation so as to allow again the traction and thereby the impulse with the bar.

BRIEF DESCRIPTION OF THE DRAWINGS

[0011] In order to facilitate the understanding of the invention presented in this application, three explanatory figures are included, where with illustrative and non-limiting character, the following is represented:

Figure 1.- Shows a side view of the device of the invention

Figure 2.- Shows a bottom view of the device of the invention where the traction system and the transmission of movement can be observed

Figure 3.- Shows a top view of the device of the invention with the detail of the opening where the manual bar is inserted.

Figure 4.- Shows a front view of the traction system where the timing belt and the cylinder that transfers the movement of the traction box can be observed.

Figure 5.- Shows a view of the system in the front axle where the detail of the displacement according to the movement of the manual bar is indicated.

PREFERRED EMBODIMENT OF THE INVENTION

[0012] As shown in the figures referred in the previous section, the invention is composed by a board similar to

a skateboard (1), with four wheels (2): two front and two rear, located on both sides of the front and rear axles. In the front axle, on top of the board, to an equidistant distance, the board has an opening that houses the insertion point (3) of the manual traction bar (4). The bar is inserted at this point (3) through a small rotation, allowing fitting in the traction mechanism (5) located under the board in the front axle. The opening located on the top part of the board (6), allows the movement forward and backward of the bar and thereby the displacement of the invention. To ensure that the bar is perfectly fitted in this point and provides a safe use of the invention, in the mentioned point of insertion (3) there will be slots in the contact surface to reach the perfect fit of the bar to the traction mechanism.

[0013] Once housed the bar in the point (3), the traction mechanism (5) will operate. It is fixed to the invention's board with screws to secure grip. The inside of the mechanism works similarly to the gear system contained in the ratchet wrenches, where the strength transferred when moving the bar (4) forward produces a displacement, and in the opposite direction, backward, turns in vacuum, thereby no movement is produced.

[0014] At the output of the mechanism, as shown in Figure 2, a cylinder with cracked surface (7) is located allowing transferring the movement of the gears to the front axle of the Ecoskateboard reaching in this way the movement of the front wheels. To distribute this movement to the rear wheels and achieving the displacement of the invention, on the surface of the cylinder a belt (9) is provided that can be made in rubber or metal, which extends until the rear axle getting the movement of both axles. To in turn, distribute the movement of the wheel to the board, the rear axle is joined to it by a fix support, an axle and fastening screws as shown in Figure 1 and 2 (9).

[0015] Although the figures do not include possible modifications of the rigid bar (4) for manual traction, it will be adjusted to the user's height. In addition, as it can be removed from its location at the insertion point (3), allows the use of this system of board with wheels similar to a skateboard according to its original function, also facilitates its storage, as without the bar and therefore, without using the traction mechanism, this invention is analogous to a traditional skateboard. This manual traction element (4) may be designed in different materials and will contain a gripping surface suitable for its use in the top part.

[0016] Although no specific design is specified in this invention, the board (1) can be decorated and customized by the possible manufacturer, as this kind of modifications will not constitute any change on its operation and performance.

Claims

1. Ecological system of board with wheels mechanically driven, Ecoskateboard, comprising a rigid board with four wheels located two in the front axle and two in the rear one, **characterized by** having in its front axle a rigid bar (4) that eases the displacement of the user, so as when he pulls the bar rearward no movement is produced but when the bar is pulled forward, the transmission of the movement to the axles is produced materializing in the forward displacement of the board.

2. Ecological system of board with wheels mechanically driven, Ecoskateboard, according to claim 1, **characterized in that** the rigid bar (4) is inserted with a small rotation in a cavity (3) located equidistant in the front axle, which forms the invention as an integral, unique and original structure.

3. Ecological system of board with wheels mechanically driven, Ecoskateboard, according to previous claims, **characterized in that** the rigid bar (4) when it is housed in the cavity (3) completes a traction mechanism (5) based on a gear system similar to a ratchet wrench providing the displacement of the board.

4. Ecological system of board with wheels mechanically driven, Ecoskateboard, according to previous claims, **characterized in that** it includes a timing belt (8) for transferring the movement along the board, which extension covers from the front axle to the rear one.

5. Ecological system of board with wheels mechanically driven, Ecoskateboard, according to previous claims, **characterized in that** the rigid bar (4) can be removed from the main board (1) and be used as support to do somersault and other games.

6. Ecological system of board with wheels mechanically driven, Ecoskateboard, according to previous claims, **characterized in that** it does not require any kind of fuel or electricity supply except for the initial impulse of the user and the mechanical action of it to move the bar and achieve the movement.

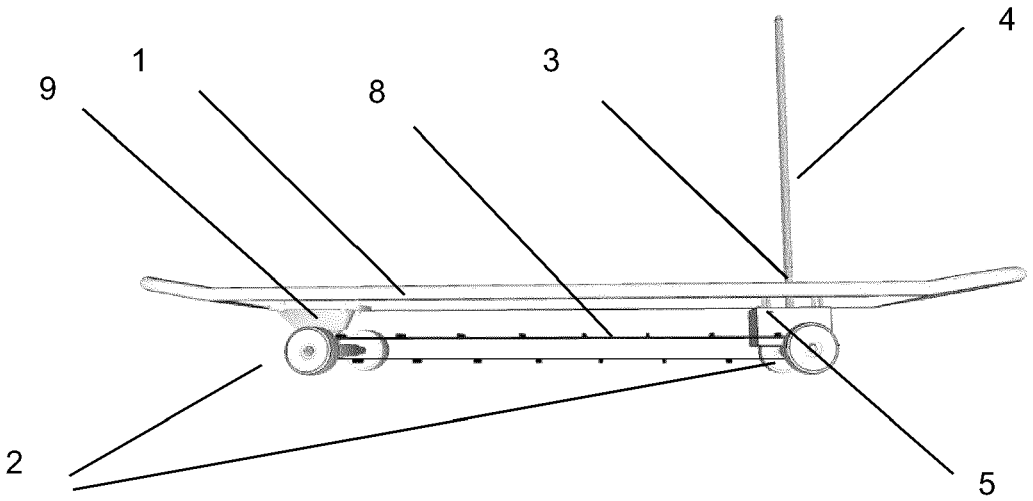

FIG. 1

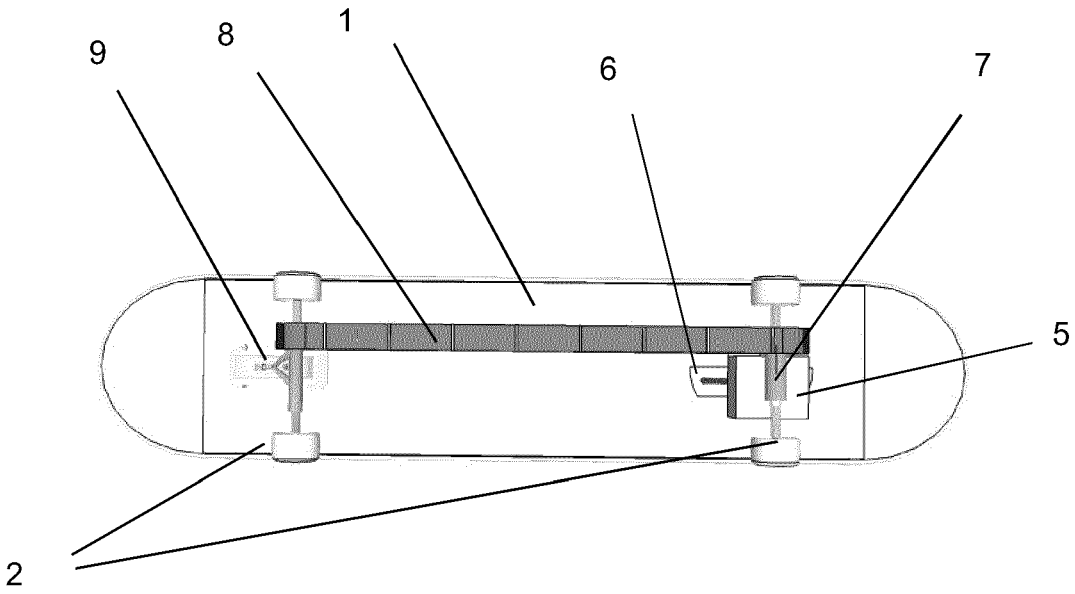

FIG. 2

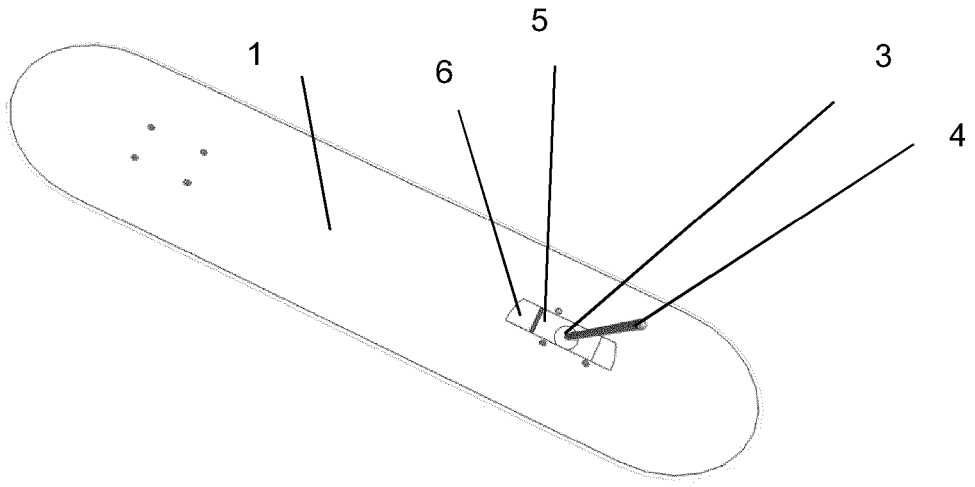

FIG. 3

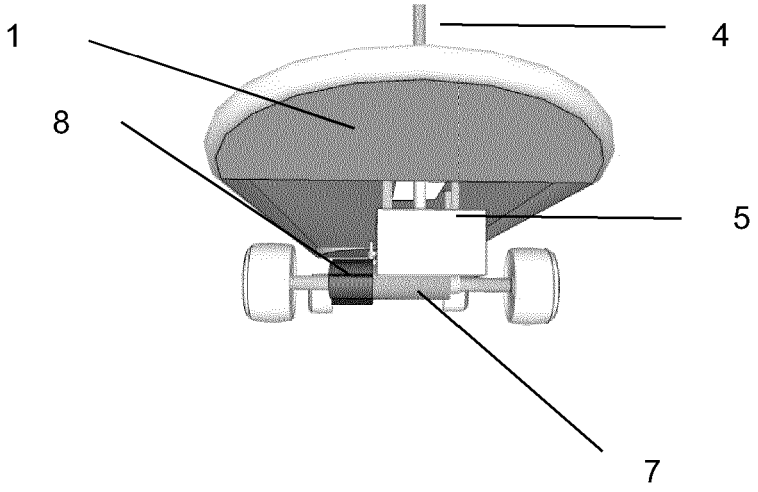

FIG. 4

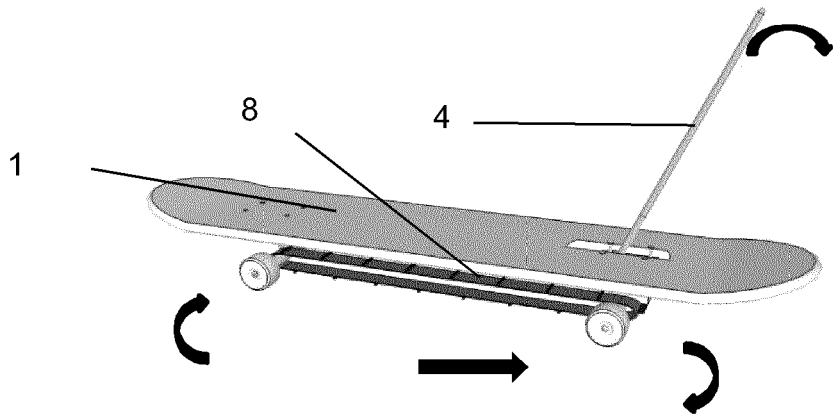

FIG. 5

Europäisches Patentamt
European Patent Office
Office européen des brevets

EUROPEAN SEARCH REPORT

Application Number
EP 16 38 2448

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
Y	DE 201 01 537 U1 (WANG LEAO [TW]) 5 April 2001 (2001-04-05) * page 2 - page 4; figures 1-4 *	1-6	INV. A63C17/12 A63C17/26
Y	DE 10 2004 029227 A1 (VOELKL THOMAS [DE]) 5 January 2006 (2006-01-05) * paragraph [0037] - paragraph [0050]; figures 1-8 *	1-6	ADD. A63C17/01
A	US 1 598 855 A (DUNLOP GEORGE H) 7 September 1926 (1926-09-07) * page 2, line 127 - page 3, line 6; figures 4,5 *	1-3	
A	US 2012/248731 A1 (LI TIANFU [US]) 4 October 2012 (2012-10-04) * paragraph [0020] - paragraph [0030]; figures 1-4 *	4	
A	WO 88/00550 A1 (PHILIPPI RANDY JAMES [US]) 28 January 1988 (1988-01-28) * figures 1-10 *	1	

TECHNICAL FIELDS SEARCHED (IPC)

A63C

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
Munich	16 February 2017	Brunie, Franck

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
Y : particularly relevant if combined with another document of the same category
A : technological background
O : non-written disclosure
P : intermediate document

T : theory or principle underlying the invention
E : earlier patent document, but published on, or after the filing date
D : document cited in the application
L : document cited for other reasons

& : member of the same patent family, corresponding document

EPO FORM 1503 03.82 (P04C01)

ANNEX TO THE EUROPEAN SEARCH REPORT ON EUROPEAN PATENT APPLICATION NO. EP 16 38 2448

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on
The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

16-02-2017

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
DE 20101537 U1	05-04-2001	DE 20101537 U1	05-04-2001
		US 6311998 B1	06-11-2001
DE 102004029227 A1	05-01-2006	NONE	
US 1598855 A	07-09-1926	NONE	
US 2012248731 A1	04-10-2012	NONE	
WO 8800550 A1	28-01-1988	AU 7751787 A	10-02-1988
		EP 0277972 A1	17-08-1988
		US 4807896 A	28-02-1989
		WO 8800550 A1	28-01-1988

EPO FORM P0459

For more details about this annex : see Official Journal of the European Patent Office, No. 12/82

REFERENCES CITED IN THE DESCRIPTION

This list of references cited by the applicant is for the reader's convenience only. It does not form part of the European patent document. Even though great care has been taken in compiling the references, errors or omissions cannot be excluded and the EPO disclaims all liability in this regard.

Patent documents cited in the description

- ES 1019462 U **[0003]**
- ES 1058226 U **[0003]**
- ES 0242653 U **[0003]**
- ES 2344918 T3 **[0003]**