

(19)



(11)

EP 3 424 569 A1

(12)

EUROPEAN PATENT APPLICATION

(43) Date of publication:

09.01.2019 Bulletin 2019/02

(51) Int Cl.:

A63F 7/06 ^(2006.01)

A47B 25/00 ^(2006.01)

A47B 37/04 ^(2006.01)

H01L 31/048 ^(2014.01)

A63F 9/24 ^(2006.01)

(21) Application number: **17305863.7**

(22) Date of filing: **04.07.2017**

(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

(71) Applicant: **SARL Action Games Productions
06250 Mougins (FR)**

(72) Inventor: **Fossati, Flavio
06250 Mougins (FR)**

(74) Representative: **Anderson, Angela Mary
Azure IP
1253 Chemin des Peyroues
06250 Mougins (FR)**

(54) **A METHOD AND SYSTEM FOR A TABLE FOOTBALL GAME AND ASSOCIATED FUNCTIONS**

(57) A table game having a playing surface, wherein the playing surface includes a solar panel integrated therein to capture sunlight and convert it into electricity for one or more additional functionalities.

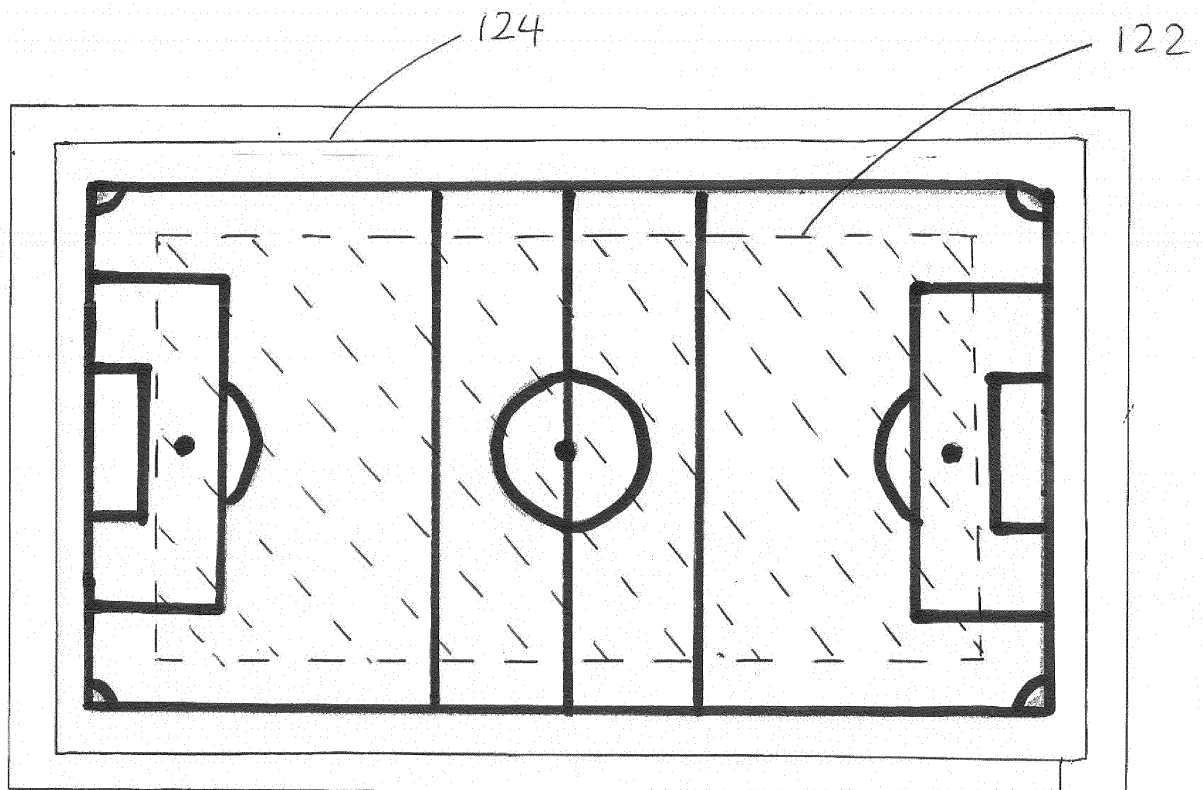


figure 5

126

EP 3 424 569 A1

Description

[0001] The present invention relates to a method and system for a table football game and associated functions.

[0002] Table football is a popular pass time in many countries. The game may be played inside in bars, but nowadays is often found outside, in a variety of locations. For example, by the beach; at a caravan park where people are on holiday; at schools etc.

[0003] Table football is a simple game, with several rows of figure representing football players attached to rods over the surface of a pitch. There is a goal at either end of the pitch and a hole through which a ball can be introduced on to the pitch. The players can be moved by turning or spinning the rods and by moving the rods in and out relative to the table to move the row of players in a lateral manner.

[0004] There are several rows of players for each team and there are different numbers of players on each of the rods giving rise to a playing or team formation. There are typically four rows of players for each team. Typically, a first rod includes a goal keeper; the second row includes two defenders; the third row include three midfield players; and the fourth row include five attackers. Different formations are possible and may vary from country to country. The players on one team face one goal and the players of the other team face the other goal.

[0005] The tables are typically of a predetermined size which generally allows up to four people on each side of the table one to control each row of players. Other sized table are also known and may be as big or small as space dictates.

[0006] Table football is generally played by young men and boys and has something of a teenage based culture.

[0007] The table includes a dispenser for balls, which is generally mechanical in nature and includes a means for dispensing one or more ball when a user inserts a payment. The ball may be released a number of times for each payment or multiple balls may be released for a single payment. After a certain number of goals the ball may no longer be dispensed and further payment is required.

[0008] As mentioned above table football is often found in outdoor locations where there is little or no access to resources. One object of the present invention is to provide a table football game which has augmented functionality.

[0009] According to one aspect of the present invention, there is provided a table game having a playing surface, wherein the playing surface includes a solar panel integrated therewith to capture sunlight and convert it into electricity for one or more additional functionalities.

[0010] Preferably, the additional functionalities include as least one of: charging a mobile device, Wi-Fi capability; internet capability; Bluetooth capability; a television, a radio, a speaker, a ventilator and a refrigerator.

[0011] Preferably, the game is table football.

[0012] Preferably, the table includes an intelligent controller for controlling the allocation of electricity to the or each additional functionality.

[0013] Preferably, the solar panel is encapsulated in an upper surface of the table.

[0014] Preferably, the table further comprises an antenna.

[0015] Preferably, the antenna is encapsulated in an upper surface of the table.

[0016] Preferably, the table includes one or more reflective elements located at predetermined locations to concentrate sunlight onto the solar panel

[0017] Preferably, the table further comprises one or more rods each includes one or more figures.

[0018] Preferably, the rods and figures include one or more solar cells to augment the solar panel.

[0019] Preferably, the table includes an accumulator for storing electrical energy.

[0020] Preferably, the accumulator charges a battery to provide the electricity of the one or more additional functionalities.

[0021] Reference will now be made by way of example to the accompanying drawings as set out below.

Figure 1 is a simplified representation of a side view of a table football game, according to an aspect of the present invention.

Figure 2 is a simplified representation of a view from above of the table football game, of figure 1.

Figure 3 is more complex representation of a view from above of a table football game, according to an aspect of the present invention.

Figure 4 is a side view, with part cut away, of the figure 3 table football game, according to an aspect of the present invention.

Figure 5 is a further view of the pitch of the table football game, according to an aspect of the present invention.

Figure 6 is a block diagram of a table football showing augmented attributes of the table, according to an aspect of the present invention.

Figure 7 is a diagram of a football table showing the figures laid out for an American football game, according to an aspect of the present invention.

[0022] Throughout the description, like references refer to like elements, unless otherwise indicated. None of the terms are limited to anything other than the broadest normal interpretation. Example are just that, examples and are not intended to be limitative in any way.

[0023] The present invention relates to a table football game or similar which includes one or more solar panels forming at least a part of the surface on which the game is played. The solar panels may be used to provide a source of energy and then provide additional attributes to the table football game, such as charging for a phone or other device, Wi-Fi, satellite and internet connections; a drinks fridge, blue tooth capability and any other ap-

propriate service as will be discussed below.

[0024] The present invention concerns the problems related to including a solar panel in a table football game and how these have been solved. In addition, the augmented capabilities are not mere additions, but have been added in a manner that solves the problems related to the mere addition of these elements, as will become clear from the details presented below.

[0025] As seen in figure 1 and 2, the table 100 broadly includes a table top shown generally at 102 and legs 104 either along each end or at each corner. The table top is typically of a predetermined depth of between about 10cm and 40cm and is rectangular when viewed from above. The dimension of the rectangle can vary depending on space and other considerations. The table top includes a plurality of holes 106 which pass through both side walls 107 at a corresponding location along each side. The holes 106 support rods 108 as shown in figure 2. There may be as many holes as rod and there may be more or less holes and rods than are shown.

[0026] Each rod includes a handle 110 at one end and a stopper 112 at the other end. The rods may comprise two co-axial rods moveable relative to one another as is known to those skilled in the art. As can be seen in figure 2 some of the rods have handles on one side and some have handles on the other side. The handles 110 are intended to be held by a user to play the game. The stopper 112 at the opposite end to the handles is there to ensure that the rods can move inwards and outwards in the holes but prevent the rods from disengaging from the hole opposite where the user is located.

[0027] Each rod includes one or more figures 114 which represent players in a football team. The figures may be fixed to the rods in many different ways and may be moveable with the rods, or to some degree at least, moveable independently of the rods. Different rods include different numbers of players to give rise to a team formation of different players for each team. The figures may be dressed in a team strip and have other features and identification means so they represent as truly as possible one or more footballers.

[0028] The table has first and second ends 116 and first and second sides 118, forming a wall 120 around the edge of the table. Goals are located in each of the first and second ends 116. Players stand (or sit) on either side of the table and hold the handles to operate and move the players. There may be one user for each handle or a single user may operate a number of different handles.

[0029] As can be seen from figure 2, a relatively large proportion of the table surface is covered by rods and figures. In addition, as the sides of the table are quite tall, to accommodate the players and ensure that the ball stays in the game some of the table may be in shade from the ends and the sides of the table. Further in use, when there are players on each side of the table, there may be further shadowing produced by the players themselves. This means that a large proportion of the table

surface is either covered or in shadow. This is a problem to be solved by the present invention, as will be seen below.

[0030] Figure 3 and 4 show a slightly different embodiment of the table having the rods engaged on a top surface of the walls and with a different number of players on the various rod. Figure 4 shows the table in more details with a cut out portion showing the cross-section of both the external and internal parts of the table. The playing surface 120 of the table is enclosed by the end and side walls 116 and 118, as mentioned above. The figures are suspended above the playing surface so their feet are close to the surface. Figure 7 shows a further layout of the table for American football.

[0031] The playing surface may include different areas of the pitched marked thereon. The surface of the pitch may have marking as shown in figure 5. Different marking may be used for different types of game, such as soccer or American football. As seen in figure 5, a section of the pitch is shown having a hashed area 122. This area is the location in the present invention of a solar panel forming at least a part of the surface of the table. The size of the solar panel may vary for different sizes and locations of table. A typical size for the solar panel is from about 20cmx30cm to about 110cmx70cm.

[0032] The power generated by the solar panel is between about 20W and 100W. The exact amount may depend on location, devices needing charge and customer requirements.

[0033] A solar panel includes one or more solar modules, each of which are made up of a plurality of solar cells which are connected together in series. The solar panels may include additional elements, such as for example: a charge controller; a battery, an inverter, an accumulator cabling, a support and a charge storing device for capturing the charge generated by the solar panel.

[0034] A solar panel absorbs the sunlight as a source of energy to generate electricity or heat. Most solar panels include one or more photovoltaic modules which use light energy (photons) from the Sun to generate electricity through the photovoltaic effect. The majority of modules use wafer-based crystalline silicon cells or thin-film cells. The cells are supported either via a top layer or a back layer. The cells should ideally be protected from mechanical damage and moisture.

[0035] A number of solar modules may be electrically connected in series to achieve a desired output voltage and/or in parallel to provide a desired current capability. Bypass diodes may be incorporated or used externally, in case of partial module shading, to maximize the output of module sections still illuminated, as is known in the art.

[0036] Some solar modules may include concentrators in which light is focused by lenses or mirrors onto smaller cells. Whilst this enables efficient use of solar cells, it is not always easy, to do, especially where the panel is located in a shadowy environment.

[0037] In the present invention, the solar panel may be integrated into a surface of the table in any of a number

of different ways. The manner in which this is done is described in greater detail below. The preferred surface is the upper playing surface of the table as this is the surface that is most exposed to the light.

[0038] A problem addressed by the present invention is the non-trivial issue of ensuring enough sun light falls on the solar cells in the environment of a table football game where there is shadowing from the game elements such as the rods, walls and figures. Also there are problems of shadowing caused by the players and the environment. Further there are problems associated with integrating the solar panel into the table surface so that the integration does not degrade the level of light hitting the solar cells.

[0039] The following description describes how the present invention integrates the solar panel into a football table and overcomes the some or all of the intrinsic problems mentioned above. In addition the present invention further goes on to resolve various problems associated with using the electricity generated in situ for a number of different functions.

[0040] As previously mentioned it is necessary to integrate the solar panel with the surface of the table. If the table surface is made of a plastics material the solar panel may be encapsulated within the plastics material of the table. In this case the plastics material needs to enable the maximum passage of illumination to the solar cells. This is achieved by using a plastics material or resin which does not absorb the sunlight. Examples of this type of material include glass, plastics materials, resins and the like.

[0041] Other ways of incorporating the solar panel into the table surface may also be used. These include sandwiching the solar panel between different layers, for example a wooden base layer and a glass upper layer. To allow for easy connectability to base of the table may include an opening formed to hold the solar panel in place and a top surface of glass or plastics material may overlay this to form the game surface.

[0042] It will be appreciated that the surface of the table on which the game is played should ideally have no irregularities which might impact the playing of the game. For example the surface should be flat and uniform, irrespective of the position and manner in which the solar panel is integrated into the surface. Any irregularities could lead to the ball not moving as required.

[0043] In addition, to maximize the solar gain of the panel the table may include a number of reflective elements which ensure that the solar panel is illuminated to a maximum. The reflective elements may be found at one or more predetermined locations, such as on or around the edges of the table; on the internal facing walls of the table; on the rod and/or on the figures. The reflective elements are positioned to reflect the maximum amount of sunlight onto the solar cells. The reflective elements are made from a material such as for example Mylar; a glass mirror or any other appropriate material.

[0044] In another embodiment, the rod and figures

would also be made to be clear where possible to allow the sunlight to pass there through. In a still further embodiment the rods and figures may include solar cells at predetermined locations to capture additional energy from the sun. The locations could include the surfaces of the rods; the heads of the figures; the goals and some or all of the surfaces of the walls. These cells augment the solar capacity of the panels by adding additional solar elements. The cells could be connected together through wires passing through the rods and to join the wiring of the solar panel itself.

[0045] The solar panel captures illumination and converts this illumination into energy. In the present invention this is electrical energy. The electrical energy is collected and stored in an appropriate storage element, such as an accumulator.

[0046] Referring to figure 6, other features of the present invention will now be described. Figure 6 shows the location and position of the solar panel 122. The solar panel is in electrical communication with a housing 300. The housing contains the electrical and electronic elements of the invention. For example, the housing includes the accumulator and a battery which may be charged by the electrical energy produced by the solar panel. The housing may be a closable unit which can only be accessed by persons with the relevant permission, to prevent theft and/or the components therein being tampered with.

[0047] In addition, the table includes a network of wires 301 to provide electricity to different parts of the table for different functions. The wires can be fed to whatever location is necessary to provide electricity to different elements and features of the table.

[0048] The table includes one or more connections or plugs, two of which are shown at 302 and 304. The plugs or connection may be of any required format or may be multi-formatted to enable connection of different devices. For example, the connection can be used to plug in a mobile phone so that it can be charged. The table may also or alternatively include a wireless charging pad 306. In order to support a mobile phone whilst charging the table can include one or more holders into which the mobile phone can be slotted to support it.

[0049] The housing may also contain other electronic devices which can be used in conjunction with a mobile phone to provide other functionalities or features. For example the housing may include a Wi-Fi system which is connectable to other devices, for example the mobile phone of a user, speakers 308 located in the table and any other relevant device. The connection to the Wi-Fi may also facilitate an internet connection for any mobile devices in the vicinity of the table. In addition to a Wi-Fi connection the housing may also include other routers or means to connect the table to the internet. One such connection may be a long term evolution (LTE) router which offers an extended form of connectability. An alternative or additional option may be a satellite terminal which can connect to one or more satellites and thereby

provide a broader connectability. Further a mobile broadband router may be incorporated into the table to provide the required connection to the internet. The provision of connectability is in no way limited and can include any relevant type and new types can be incorporated as and when they become available.

[0050] The housing can include a plurality of different connectability options, preferably in a stacking design or different modules which can be interchanged and replaced as required.

[0051] It will be appreciated that an antenna may be required for some or all of the connectivity to wireless or satellite connections. The antenna may take many different forms. One example is to include the antenna within the surface of the table running round the edge of the playing area as shown in figure 5 at reference 124. In such a case the antenna may be connected to the electronics circuits in the housing via a connector 126. Where the antenna is incorporated into the surface of the table a further advantage is achieved. This is that the manufacture process is optimized as the solar panel and the antenna may be integrated into the table surface in the same process.

[0052] The table may include a Bluetooth™ functionality which is further housed in the housing 300. This functionality may be used to connect the mobile phone of the user with for example the speakers 308. This will enable users to listen to music whilst playing the game. Other Bluetooth functionalities can clearly be incorporated as required.

[0053] The table may include many other features and functions that can be powered by the electricity generated by the solar panel. Examples include a small refrigerator 310 for chilling drinks; a television receiver and screen; a digital radio; a ventilator, an advertising panel or any other device which may be of interest to the users of the game.

[0054] Some or all of the functionality of the present invention can be applied to other gaming scenarios where users are playing a game outside. For example, the features of the present invention may be applied to a table tennis table; a table hockey game or any other table game. It will be appreciated that some of the problems with shadowing will be less relevant with some table games.

[0055] It will be appreciated that the electricity generated by the solar panel, may be variable as a results of weather conditions and the amount of use at a given time. Accordingly, not all the functionalities may be available at a given time and the table may need to include a switching device for use by the users to select the functionality they wish to use. In addition, the accumulator should be adapted to accumulate energy/electricity when the table is not in use to provide additional power when the table is used.

[0056] All the devices and elements are ideally adapted to be power efficient wherever possible and are controlled to enter a power saving mode when not in use.

This may mean that the housing also includes an intelligent controller to manage the power distribution and to power off or place in a standby mode any devices that are not being used.

[0057] The present invention provides an augmented table game environment adapted to the present day. Users can play the game and interact with modern world capabilities at the same time.

Claims

1. A table game having a playing surface, wherein the playing surface includes a solar panel integrated therein to capture sunlight and convert it into electricity for one or more additional functionalities.
2. The table game of claim 1, wherein the additional functionalities include at least one of: charging a mobile device, Wi-Fi capability; internet capability; Bluetooth capability; a television, a radio, a speaker, a ventilator and a refrigerator.
3. The table game of claim 1 or claim 2, wherein the game is table football.
4. The table game of any one of claims 1-3, wherein the table includes an intelligent controller for controlling the allocation of electricity to the or each additional functionality.
5. The table game of any one of claims 1-4, wherein the solar panel is encapsulated in an upper surface of the table.
6. The table game of any one of claims 1-5, wherein the table further comprises an antenna.
7. The table game of claim 6, wherein the antenna is encapsulated in an upper surface of the table.
8. The table game of any one of claims 1-7, wherein the table includes one or more reflective elements located at predetermined locations to concentrate sunlight onto the solar panel
9. The table game of any one of claims 1-8, wherein the table further comprises one or more rods each includes one or more figures.
10. The table game of claim 9, wherein the rods and figures include one or more solar cells to augment the solar panel.
11. The table game of any of claims 1 to 10, including an accumulator for storing electrical energy.
12. The table game of claim 11, wherein the accumulator

charges a battery to provide the electricity of the one or more additional functionalities.

5

10

15

20

25

30

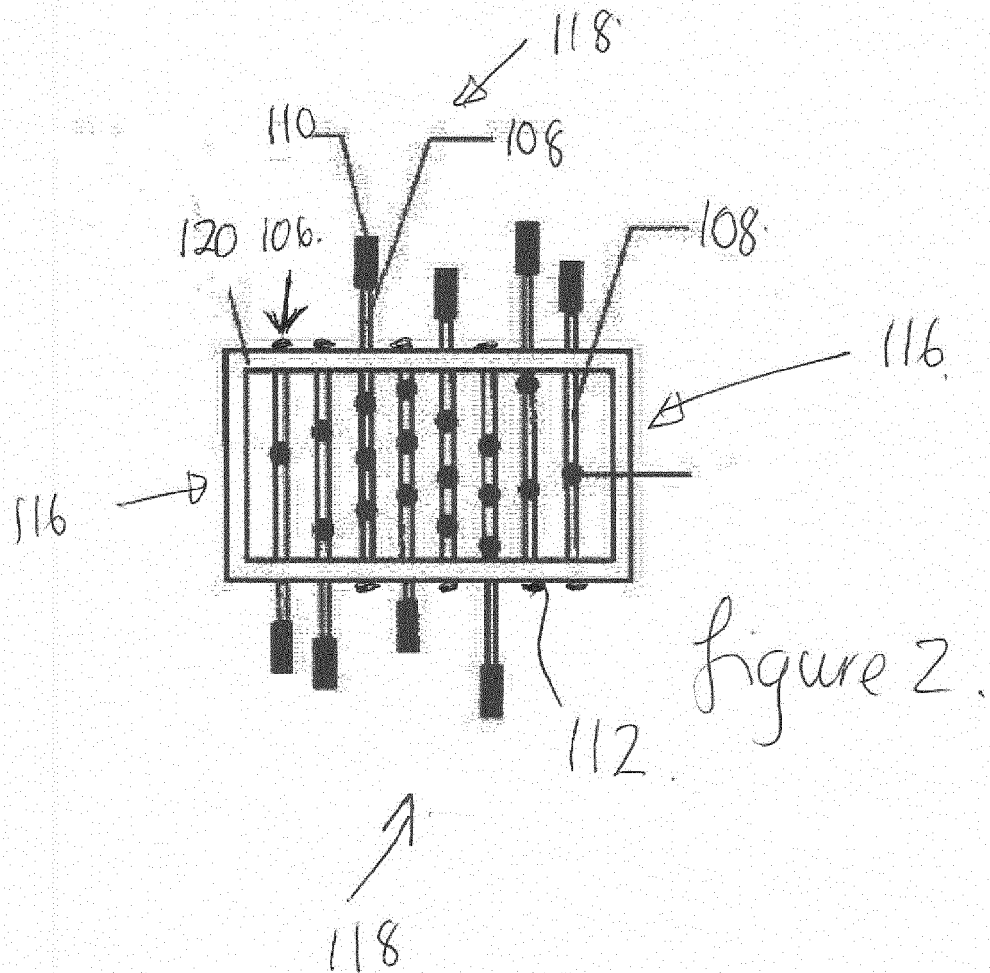
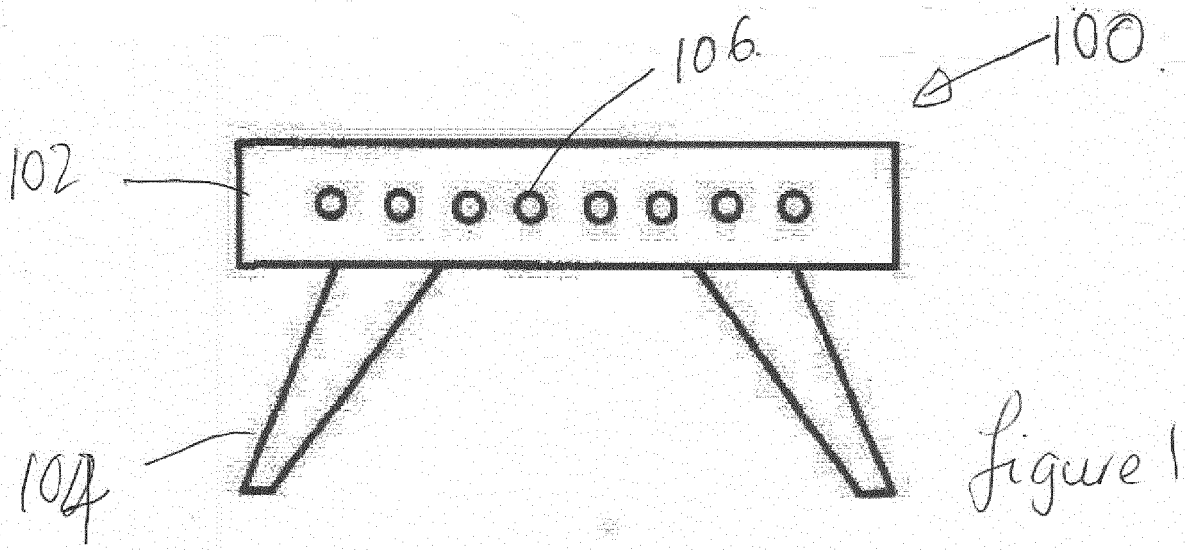
35

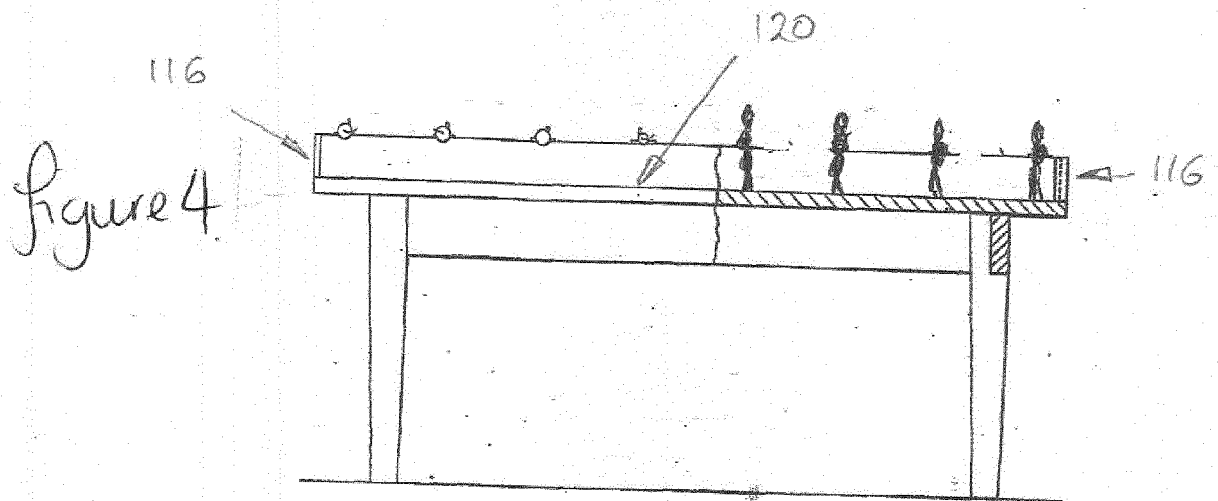
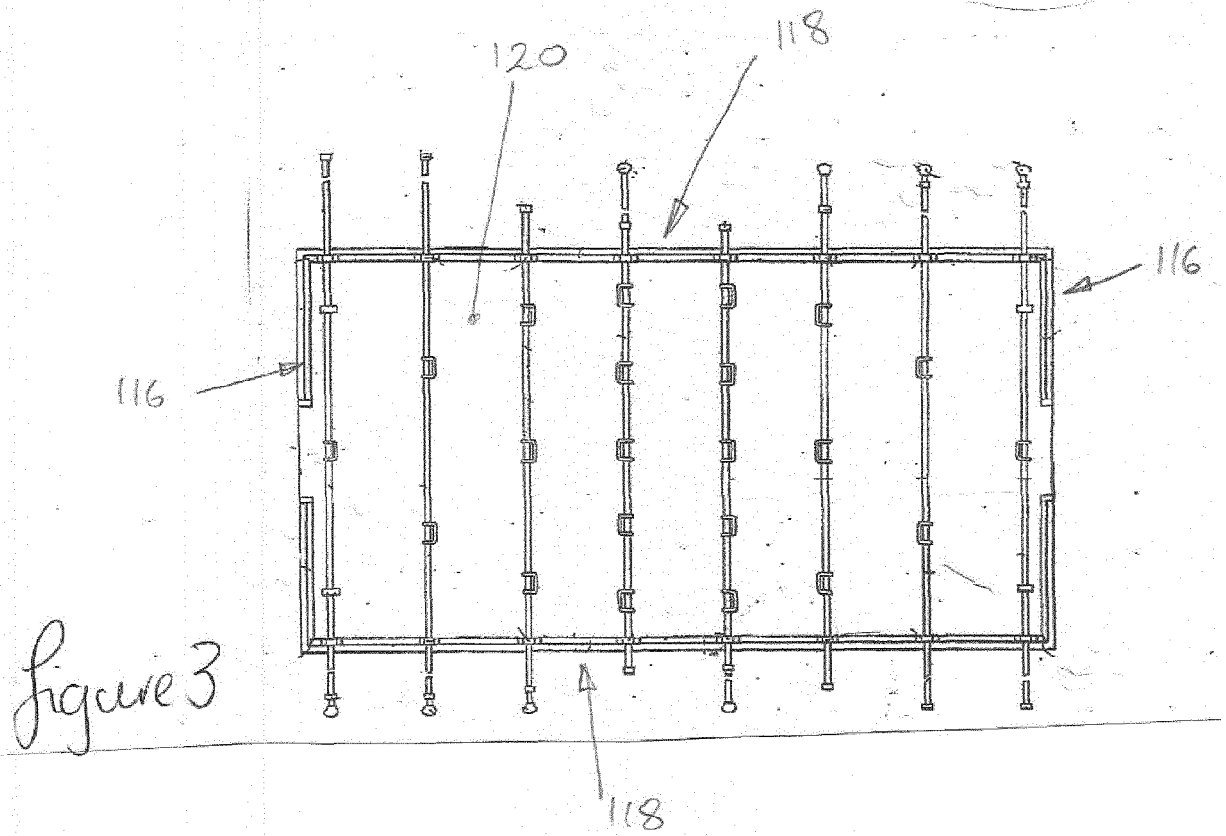
40

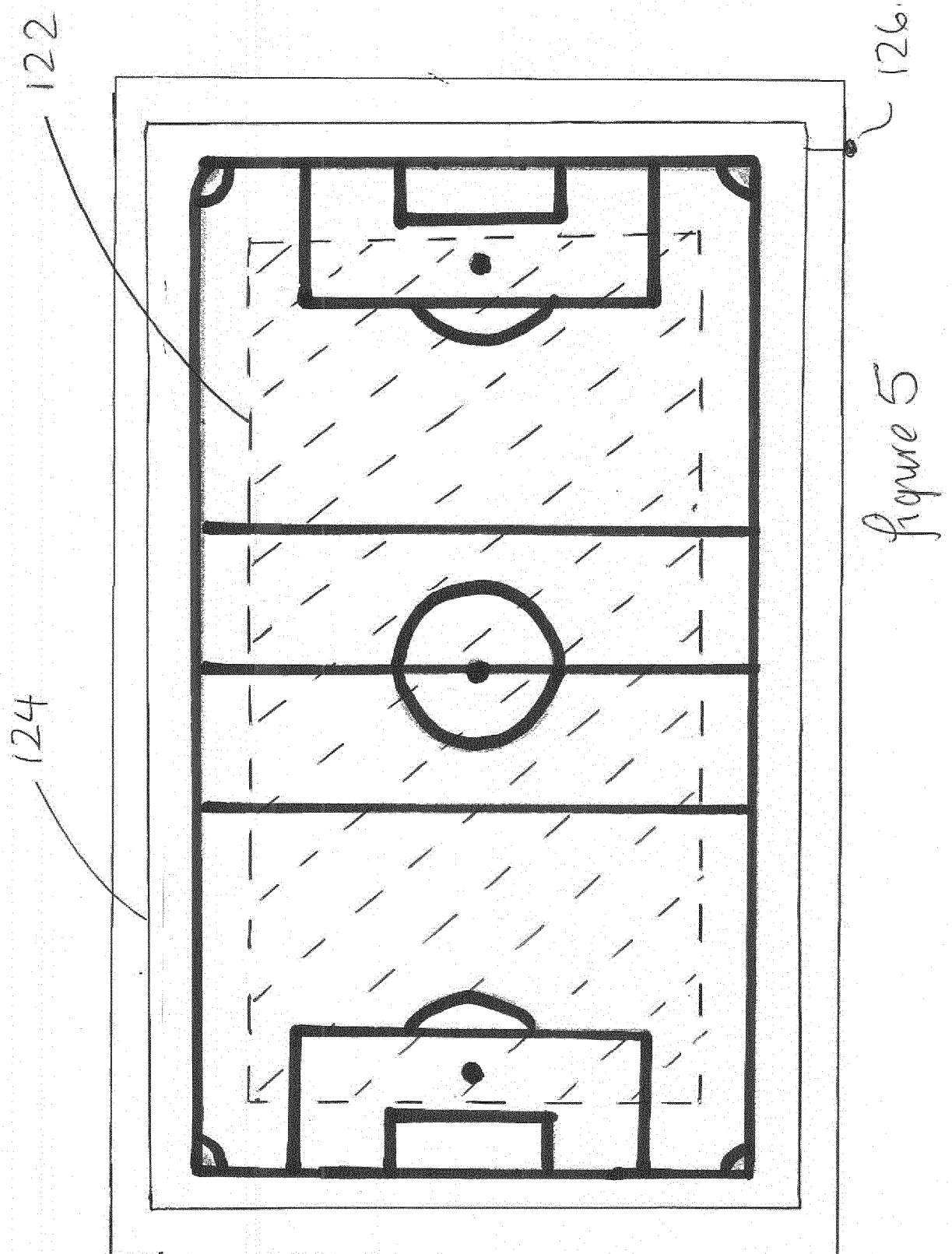
45

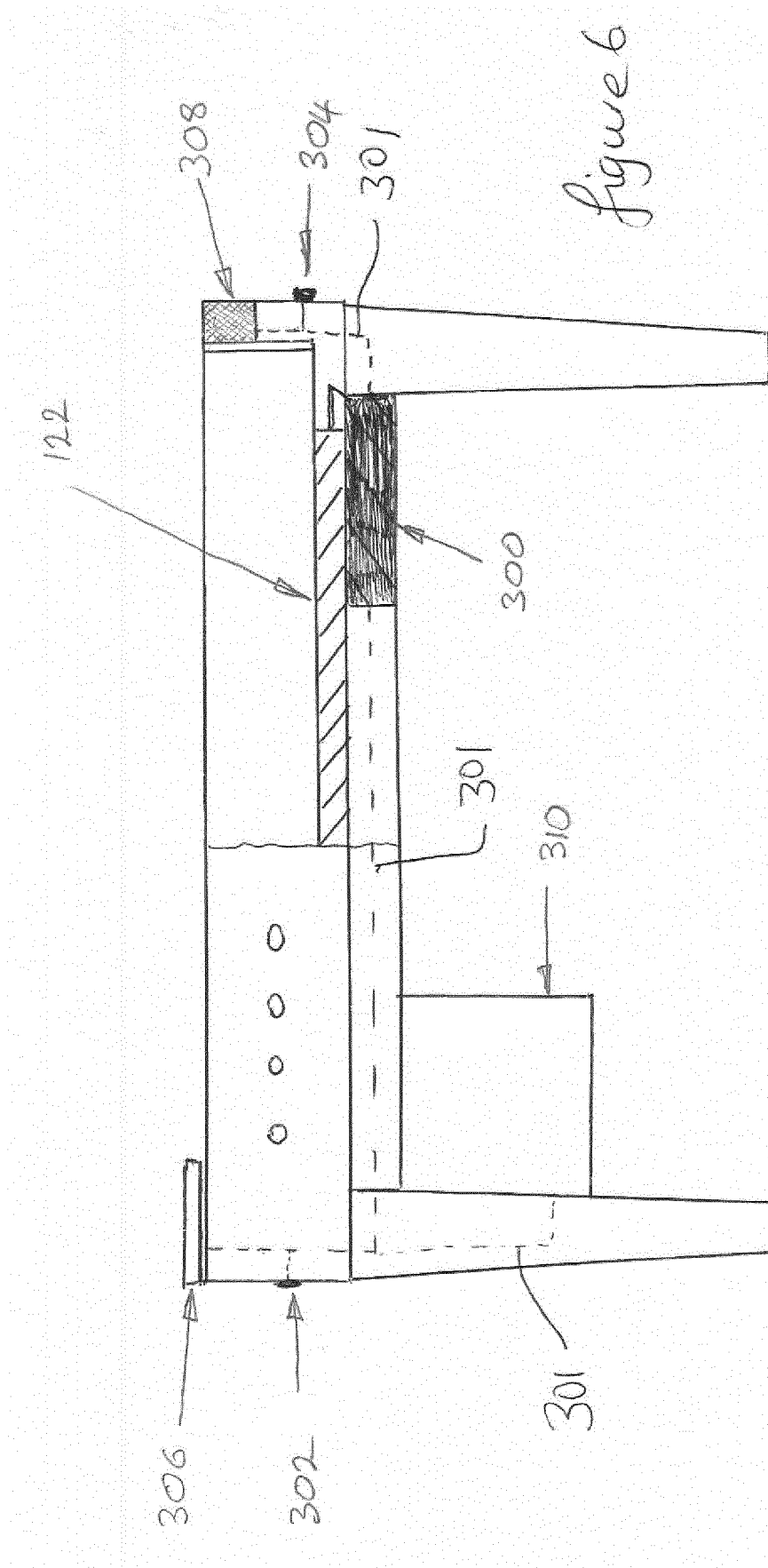
50

55









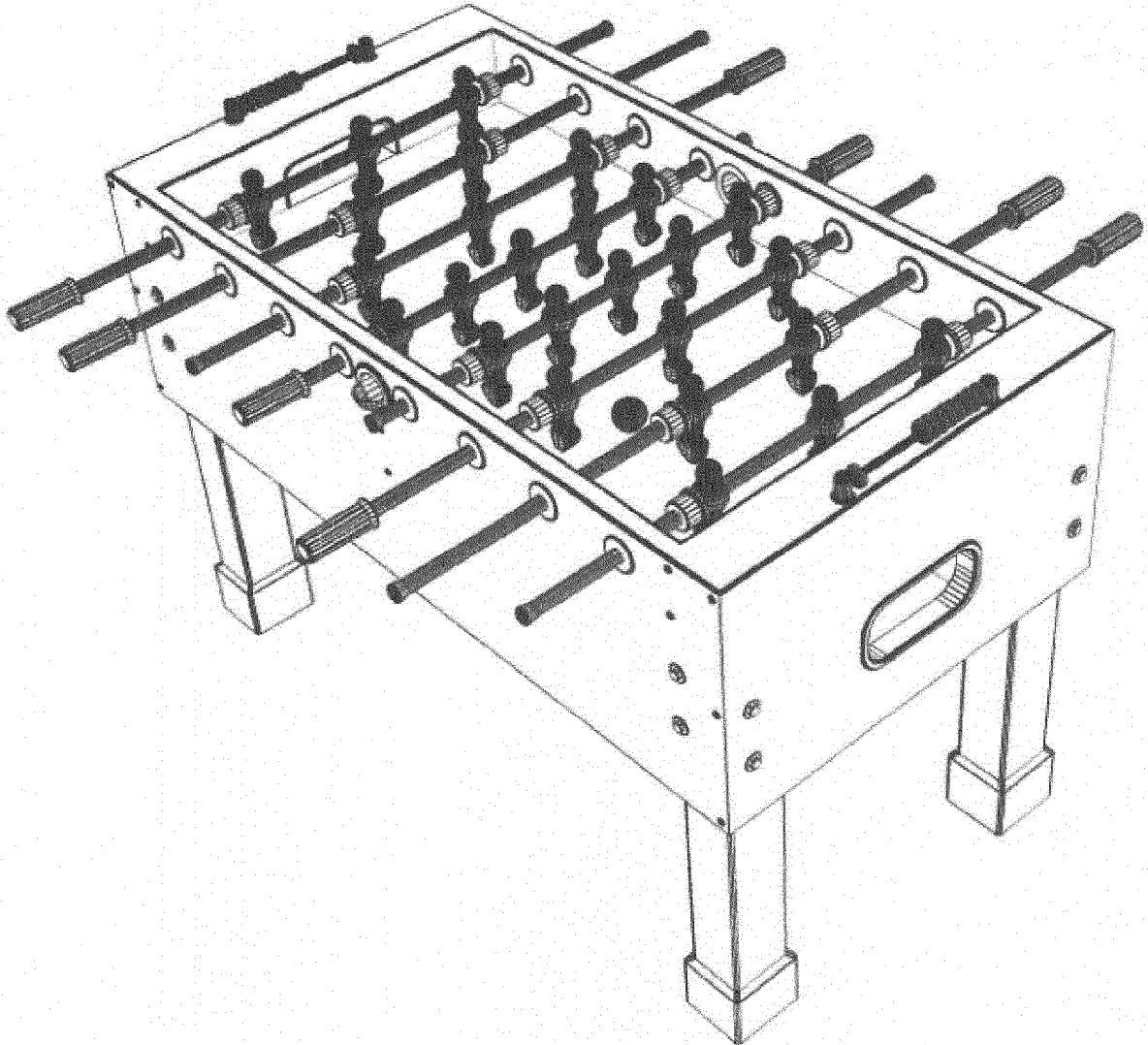


figure 7



EUROPEAN SEARCH REPORT

 Application Number
 EP 17 30 5863

5

10

15

20

25

30

35

40

45

50

55

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	CN 204 950 009 U (HARBIN JINDU SOLAR ENERGY TECHNOLOGY CO LTD) 13 January 2016 (2016-01-13) * the whole document *	1,2,5,8,11,12	INV. A63F7/06 A47B25/00 A47B37/04 H01L31/048
X	CN 202 287 000 U (NANTONG DANDELION IND DES SERV) 4 July 2012 (2012-07-04) * the whole document *	1,2,5,11,12	ADD. A63F9/24
X	US 2015/137452 A1 (DAHL DEREK GEORGE [US] ET AL) 21 May 2015 (2015-05-21) * paragraphs [0004], [0016], [0092], [0094]; figures 8a,8B *	1,3-5,11,12 6,7,9	
Y			
X	CN 203 841 312 U (HUNAN INST ENGINEERING) 24 September 2014 (2014-09-24) * the whole document *	1,4,5,11,12	
Y	US 2014/371875 A1 (BOYE JEROME [FR] ET AL) 18 December 2014 (2014-12-18) * the whole document *	6,7,9	
A	US 2008/116643 A1 (MIRANDA GREGORY A [US] ET AL) 22 May 2008 (2008-05-22) * Fig. 4 and 9 and corresponding passages in the description *	10	
The present search report has been drawn up for all claims			TECHNICAL FIELDS SEARCHED (IPC) A63F A47B H01L
Place of search Munich		Date of completion of the search 12 December 2017	Examiner Bagarry, Damien
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			

 1
 EPO FORM 1503 03.82 (P04C01)

**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 17 30 5863

5

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.

12-12-2017

10

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
CN 204950009 U	13-01-2016	NONE	
CN 202287000 U	04-07-2012	NONE	
US 2015137452 A1	21-05-2015	NONE	
CN 203841312 U	24-09-2014	NONE	
US 2014371875 A1	18-12-2014	EP 3042362 A1	13-07-2016
		US 2014371875 A1	18-12-2014
		WO 2014199325 A1	18-12-2014
US 2008116643 A1	22-05-2008	NONE	

25

30

35

40

45

50

55

EPO FORM P0459

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