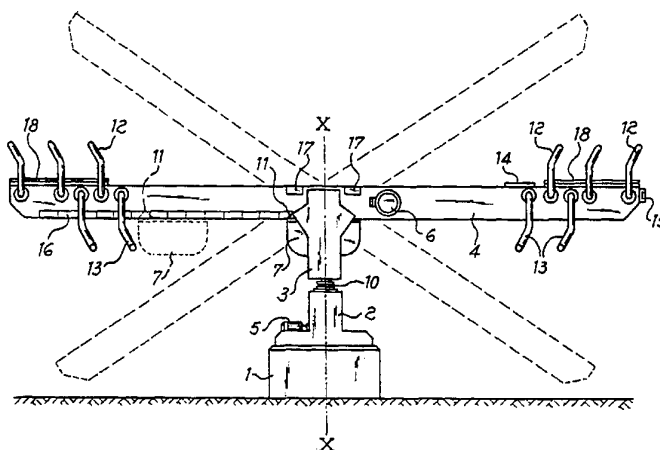




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(21) International Application Number: PCT/IT94/00149 (22) International Filing Date: 14 September 1994 (14.09.94) (30) Priority Data: MI93A002016 17 September 1993 (17.09.93) IT (71) Applicant (for all designated States except US): MACCHI- ETTI, Stefano [IT/IT]; Via Romagnosi, 22/a, I-05100 Terni (IT). (71)(72) Applicant and Inventor: PERICOLINI, Gianfranco [IT/IT]; Strada delle Pretare, 28, I-05035 Narni (IT). (74) Agents: ADORNO, Silvano; Societa' Italiana Brevetti, Via Carducci, 8, I-20123 Milano (IT) et al.	(81) Designated States: AM, AT, AU, BB, BG, BR, BY, CA, CH, CN, CZ, DE, DK, ES, FI, GB, GE, HU, JP, KE, KG, KP, KR, KZ, LK, LT, LU, LV, MD, MG, MN, MW, NL, NO, NZ, PL, PT, RO, RU, SD, SE, SI, SK, TJ, TT, UA, US, UZ, VN, European patent (AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG), ARIPO patent (KE, MW, SD). Published <i>With international search report.</i>	

(54) Title: A GAME OF THE SEE-SAW TYPE, CAPABLE OF ROTATING AROUND A CENTRAL AXIS, PROVIDED WITH A BALANCING COUNTERWEIGHT AND ACTING ALSO AS A BALANCE

**(57) Abstract**

There is described a game of the see-saw type, wherein an extended bar or beam is oscillated up and down by children and/or adults sitting at the respective ends. According to the invention the central support can rotate around a vertical axis rotated if necessary by a motor reducer placed at the base thereof. Moreover, there is provided a counterweight, which can slide on the oscillating beam and can be moved by means of manual controls or automatically through sensors for detecting balance positions of the beam itself. It is thus possible to use the game for a single user, whereby the see-saw acts also as a balance by making use of the counterweight position, or for several users having different weights, the balancing of the two arms of the beam being ensured. In order to use the game on payment there may be provided a slot-machine, connected to timers and automatic devices for the possible operation of the rotating motor reducer, even at different speeds and for returning to the initial conditions with the counterweight in the central position.

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"A GAME OF THE SEE-SAW TYPE, CAPABLE OF ROTATING AROUND
A CENTRAL AXIS, PROVIDED WITH A BALANCING COUNTERWEIGHT
AND ACTING ALSO AS A BALANCE"

5 The present invention concerns a game of the see-saw
type wherein an extended bar or beam is generally, not
necessarily, oscillated up and down by two children
sitting astride the beam itself at the respective ends.

10 It is known that a game of this type, even in the
more sophisticated versions which can be found in
playgrounds for children can be exclusively used by
pairs of users having moreover a weight which is not too
much different. It is clear that a single child could
not make use of such a game, even if he would be with a
15 parent whose weight is evidently too much different.
Furthermore this can be rather monotonous, a while
afterwards, because it is only possible to alternately
move up and down with the two ends of the beam, by
oscillating thus around the balance position thereof.

20 It is therefore an object of the present invention
to provide a game of the above mentioned type which
allows other movements, besides the oscillation on a
vertical plane, in particular the rotation around the
vertical axis of the central supporting pin, but most of
25 all can be used for fun even by a single child or adult

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at a time, or even by an adult with child, placed if necessary, for safety on the same end of the beam.

These objects are attained with a structure comprising a bar or extended beam capable of oscillating
5 on the vertical plane around a central horizontal pin mounted on a support rotating around a vertical axis with respect to a fixed base, wherein along said beam there is mounted a sliding counterweight which can be positioned by means of suitable manual or automatic
10 controls in order to balance the weights on the two arms of the beam with respect to the central pin.

According to a particular aspect of the present invention, on an arm of the beam there is reproduced a weight scale along which visibly runs a pointer integral
15 with said counterweight so as to act as a balance of the whole. According to a further aspect of the present invention, the game acting if necessary as a balance is of the on-payment type, which may be installed for instance also in amusement parks as well as in public
20 parks, and comprises a slot machine to control the start of a game cycle which comprises the positioning of the counterweight by means of an electric motor controlled by suitable balance position sensors, the rotation of the central rotating support by operating a motor
25 reducer with several successive speeds if necessary, and

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the end of the cycle by bringing the counterweight back to the initial central position.

These and other objects, advantages and features of the game according to the present invention will appear more evident from the following description of a preferred embodiment thereof, disclosed by way of a non limiting example with reference to the attached drawings wherein:

Figure 1 is a schematic lateral view of the game according to the present invention with the oscillating beam at the horizontal balance point and, with a broken line, in the two extreme oscillating positions; and

Figure 2 is a top plan view of the same game of Fig.1 in two different positions during the rotation around the vertical axis.

Referring to the drawings, the game according to the present invention consists of a supporting structure comprising a base 1 which can be fixed to or only laid on the ground or the pavement, however being rather heavy (for instance being made of concrete) in order to withstand possible overturning of the whole, still allowing its moving, when desired. Thereon is mounted a fixed support 2 on which there is mounted, for instance on an axial ball bearing 10, a rotating support 3 capable of rotating around a vertical axis X-X. The bar

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or oscillating beam 4 of the see-saw is mounted on said rotating support 3 by means of a horizontal pin 8 (visible in Fig. 2) provided with terminal flanges in order to avoid the discharge, during the oscillations, of the beam 4 which preferably has flanges 9 in the central zone acting as guides inside the upper portion of rotating support 3.

With 5 there is shown the motor reducer for rotating, at different speeds if necessary, the rotating support 3, suitable kinematic devices (not shown in the drawings) being provided for the motion transmission inside fixed support 2.

A sliding counterweight 7 is provided, preferably along the lower side of beam 4 and as inner as possible in order to create the slightest hindrance especially in the central pivoting zone, whereby there are provided suitable sliding guides on the beam and operating units consisting for instance of a double chain with toothed wheels and manual operating controls such as hand wheels and the like. On the contrary, in the figures there has been shown a motor 6 for the translational motion of counterweight 7 by any known means, for instance a worm screw or rack system. Motor 6 can be operated to automatically move to the right position the counterweight by means of suitable sensors which, placed

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for instance in the zone wherein shock-absorbing buffers
17 are provided on rotating support 3, control the
rotation in either direction of the reversible motor 6,
moving thus the counterweight 7 forwards to an end
5 position or backwards to the central position drawn with
an unbroken line in Fig. 1, up to get the balance, the
beam 4 being horizontal in the game starting position.

Counterweight 7 may be provided with a pointer 11 to
indicate, on a suitable weight scale 16, reproduced on
10 one of the arms of beam 4, the weight of a person
sitting on the end of the opposite arm, acting thus as a
real balance. With 12 there have been shown the hand-
resting and back-resting elements between the seat
portions 18 provided on both ends of beam 4, and which
15 may be more than one in order to allow several children
or adults to use the game at one and/or the other end,
while the respective foot-rests have been shown with 13.
It is clear that, when children are sitting on both arms
of the beam, the weight shown by the counterweight on
20 the scale 16 is the weight difference between two
children or groups of children.

At last, the game according to the present invention
is suitable to be used on payment, by means of a token
or a coin to be inserted into a slot machine 15, so as
25 to give the necessary impulse to unlock the

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counterweight 7 from its central resting-position drawn with unbroken lines in Fig. 1. The same impulse controls the operation of motor 6 thanks to the above mentioned sensors (not shown) up to the right position of counterweight 7 which therefore allows the child to make use of the see-saw game even without a partner on the other end of the latter, or with a parent, sitting nearby if necessary, on the same side of the beam, especially if the child is young. At the same time a timer is started for the delayed start of motor reducer 5 which rotates beam 4 of the see-saw, if necessary at different successive speeds and with direction reversal, up to the end of the game cycle and the return of the counterweight to the central resting-position. Said cycle may be programmed in advance and if necessary modified by the user by operating on a control panel 14 placed near the seat 18.

Of course, the game may also be used in a traditional way by children placed astride both ends of the beam, with the possibility of manually move the counterweight, as above mentioned, and rotate the rotating support by means of the muscular power only.

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CLAIMS

1. Structure for a game of the see-saw type, comprising an extended beam (4) capable of oscillating on the vertical plane around a central horizontal pin (8) mounted on a support (3) rotating around a vertical axis (X-X) and with respect to a fixed base (1,2), movable if necessary, characterised in that along at least one of the two arms formed by said beam (4) there is mounted a sliding counterweight (7) which can be moved in order to balance the weights resting on the two arms with respect to said central pin (8).

2. Structure according to claim 1, characterised in that along the inner surface of said beam (4) sliding guides are provided for said counterweight (7) linked to an external manual operating unit by means of double chains with toothed wheels.

3. Structure according to claim 1, characterised by comprising a reversible motor (6) mounted on the beam itself (4) and controlled by sensors capable of detecting the inclination of the beam on both sides in order to give the right operating impulses in either direction of said motor (6) mechanically linked to said counterweight (7) up to place the latter in a balanced horizontal position of the beam (4).

4. Structure according to claim 1, characterised

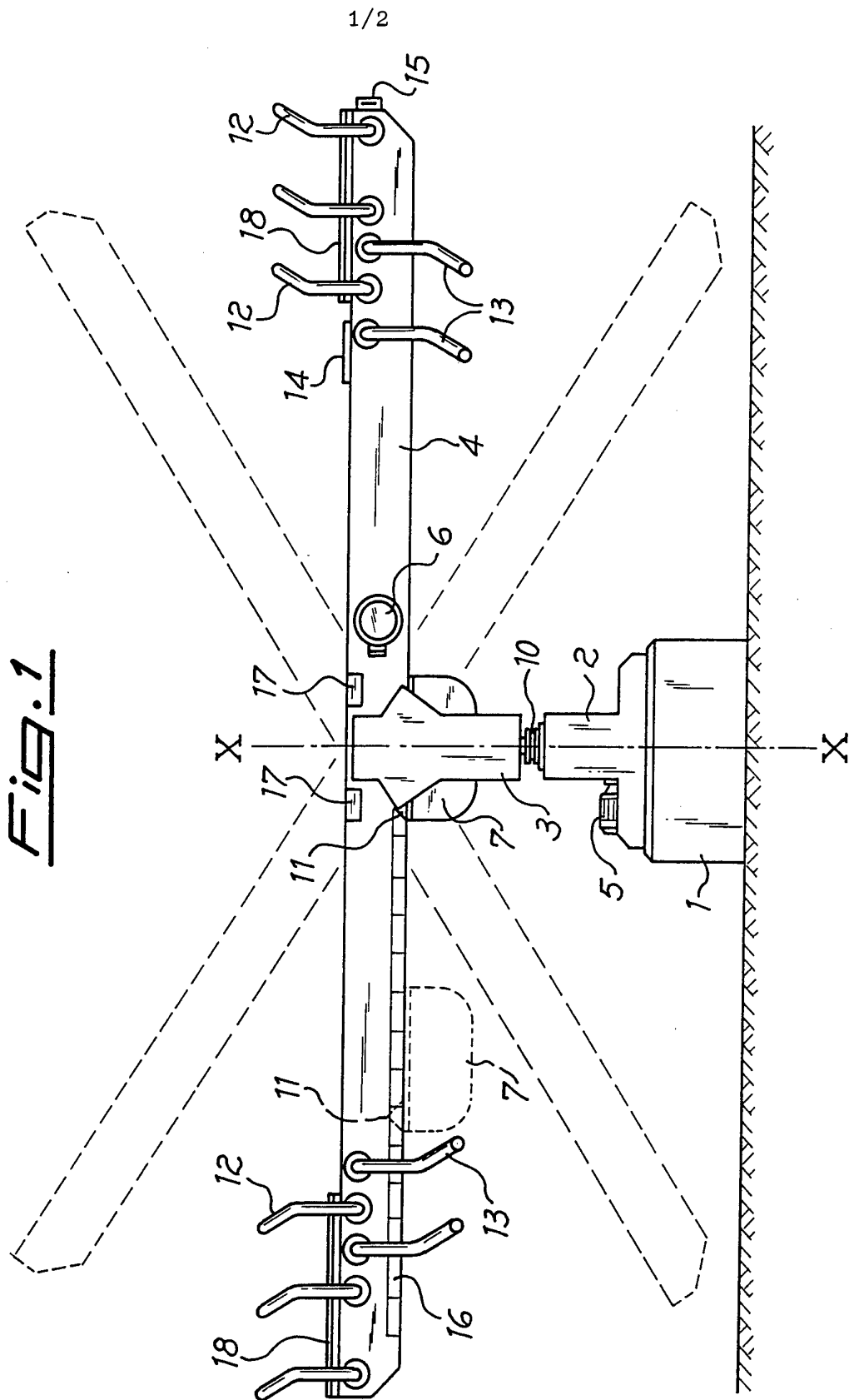
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in that on at least one of the two arms of beam (4) on both sides of central pin (8) there is reproduced a weight scale corresponding to the sliding way of a pointer (11) integral with said counterweight (7).

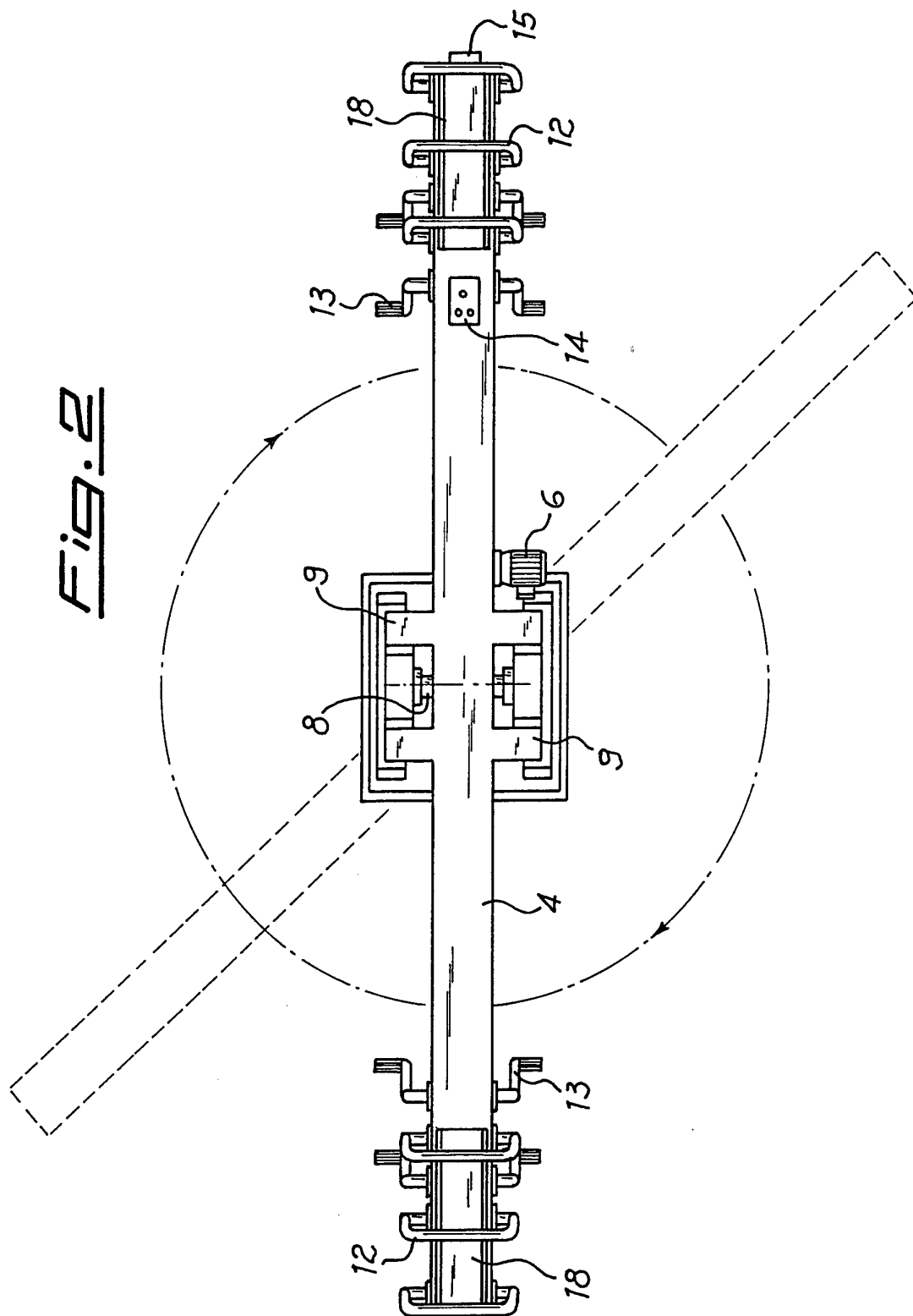
5 5. Structure according to claim 1 or 3, characterised by comprising a motor reducer (5) mechanically linked to said rotating support (3) in order to rotate it with respect to said vertical axis (X-X).

10 6. Structure according to claims 3 and 5, characterised by comprising a slot machine (15) suitable to give the necessary impulse to start a game cycle which may be chosen by operating on a control panel (14) in order to allow the motion of said counterweight (7)
15 from an initial resting-position, central with respect to said beam (4), up to the balance position for operating said motor (6), by starting timing means for the delayed control of said motor reducer (5).

20 7. Structure according claim 6, characterised in that said motor reducer (5) is reversible and may be sequentially operated at different speeds in either direction according to the game cycle programmed on panel (14).



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INTERNATIONAL SEARCH REPORT

International Application No

PCT/IT 94/00149

A. CLASSIFICATION OF SUBJECT MATTER
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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)

IPC 6 A63G

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 practical, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US,A,1 694 785 (LANGE) 11 December 1928 see page 1, line 1 - line 4 see page 1, line 104 - page 2, line 6; figure 1 ---	1
X	DE,C,361 933 (VOGT) 20 October 1922 see the whole document ---	1
X	DE,C,53 706 (NAUMANN) 1 October 1890 see the whole document ---	1,2
X	US,A,1 432 746 (DOWNEY) 24 October 1922 see page 2, line 11 - line 23; figure 1 ---	1,4
A	DE,C,100 278 (HAYDEN) 6 December 1898 see page 1, right column, line 11 - page 2, left column, line 16; figures 1,2 --- -/--	1,2

☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

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Date of the actual completion of the international search

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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US,A,3 588 100 (SCHOENWALD) 28 June 1971 see column 1, line 60 - column 2, line 9; figures 1,2 -----	5-7

INTERNATIONAL SEARCH REPORT

Information on patent family members

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Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US-A-1694785		NONE	
DE-C-361933		NONE	
DE-C-53706		NONE	
US-A-1432746		NONE	
DE-C-100278		NONE	
US-A-3588100	28-06-71	NONE	