



(12) **EUROPEAN PATENT APPLICATION**  
published in accordance with Art. 158(3) EPC

(43) Date of publication:  
**28.07.2004 Bulletin 2004/31**

(51) Int Cl.7: **A63B 69/24, A63B 69/32**

(21) Application number: **02783104.9**

(86) International application number:  
**PCT/ES2002/000501**

(22) Date of filing: **23.10.2002**

(87) International publication number:  
**WO 2003/037450 (08.05.2003 Gazette 2003/19)**

(84) Designated Contracting States:  
**AT BE BG CH CY CZ DE DK EE ES FI FR GB GR  
IE IT LI LU MC NL PT SE SK TR**

(72) Inventors:  
• **VALERO MORENO, Francisco, Javier**  
F-08023 Barcelona (ES)  
• **GORDILLO MARIN, Alberto**  
E-08023 Barcelona (ES)

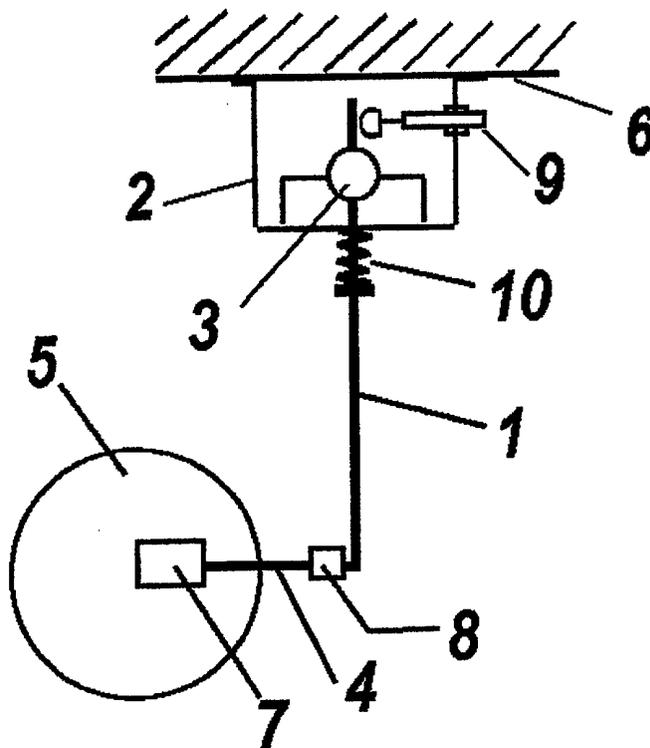
(30) Priority: **29.10.2001 ES 200102459**

(71) Applicant: **Gaelco, S.A.**  
08023 Barcelona (ES)

(74) Representative: **Canela Giménez, Teresa**  
C/Girona no 148, 1o 2a  
08037 Barcelona (ES)

(54) **IMPROVEMENTS MADE TO VIDEO GAME CONSTRUCTION**

(57) The invention relates to improvements made to the construction of video games of the type that simulate the reactions of a body according to strikes that said body receives.



**Fig. 1**

## Description

**[0001]** The subject of the present invention refers to some improvements introduced in the construction of video games of the type which simulate the reactions of a body to blows.

**[0002]** The same applicant already introduced improvements in this type of video games in its Spanish Patent no. 9900669, these improvements consisting in that the body to be struck, which is situated above the playing area, is attached to an upright element having a projecting upper end, cranked at right angles, and having its tip fitted into the actual body receiving the impact. Inside the said cranked end it is disposed a module carrying a displaceable transducer that detects the reactions to the impacts and converts them into analog/digital signals that are sent to the CPU of the video game machine.

**[0003]** The problem raised by this type of development is that a constant and annoying noise becomes generated during operation thereof. Such noise is generated by the intervention of a resilient element that serves as a base for the struck element to recover its position of balance.

**[0004]** Another problem is that the vibrations intrinsic to the resilient element cause additional movements to those already generated by the blow along with the ensuing distortion.

**[0005]** The improvements in the present construction have been introduced in order to palliate the problems set forth above.

**[0006]** For a correct interpretation, a practical embodiment of the invention is described by way of non-limiting example below, there being appended one sheet of drawings, in which Figure 1 represents one section of a machine constructed in accordance with these improvements, with the schematic representation of its parts.

**[0007]** The invention consists in some improvements introduced in the construction of video games of the type which simulate the reactions of a body to blows, comprising a rod (1) hanging from a box (2) inside which it is suitably lodged a rotary means (3), such as a knuckle, of up to three degrees of rotary freedom, into which the said rod is fitted, this rod having an oscillating pendular movement owing to the gravitational force.

**[0008]** The other end of the rod (1) is cranked (4) and the body to be struck (5), for instance, the imitation of a football, is fixed to its tip.

**[0009]** This assembly is attached to a support surface (6) from which it hangs.

**[0010]** Whenever a player strikes the body (5), the energy from the blow is transmitted to the rod (1) that as a result tends to oscillate. Thanks to the gravitational force, after a period of oscillation, the rod (1) recovers its position of balance and is ready to receive another impact.

**[0011]** This device is provided with transducers (7) and (8) that measure the force, the acceleration and the

direction of the blow delivered by the player. This information is transmitted either analogically or digitally to the CPU, not shown, which monitors the development of the video game and is responsible for displaying players' actions as a game sequence on the corresponding screen.

**[0012]** In a preferred embodiment of the invention the pendular base is provided with energy-absorbing means (9), such as a shock-absorber, that slow down the oscillation of the rod (1) after the blow, thereby permitting the rod (1) to return to its position of balance far more quickly and with smaller oscillations.

**[0013]** Additionally, a resilient element (10), such as a spring, is disposed, if necessary, at the upper end of the rod, the function of this element being that of initially absorbing the energy from the impact and shortening the time needed by the rod (1) to recover the position of balance.

## Claims

- Improvements introduced in the construction of video games of the type which simulate the reactions of a body to blows, **characterized by** the fact of their being provided with a rod (1) hanging from a box (2) inside which it is suitably lodged a rotary means (3), such as a knuckle, of up to three degrees of rotary freedom, through which the said rod passes, the body to be struck (5) being cranked (4) at the opposite end of the said rod (1) and fitted to the tip thereof, the entire assembly being fixed to a support surface (6) from which it hangs.
- Improvements introduced in the construction of video games of the type which simulate the reactions of a body to blows, in accordance with claim 1, **characterized in that** attached to the said rod (2) are transducers or other means for measuring (7 and 8) the force, the acceleration and the direction of the blows received by the body (5).
- Improvements introduced in the construction of video games of the type that simulate the reactions of a body to blows, in accordance with the previous claims, **characterized in that** the analog-digital signals produced by the said measuring means (7 and 8) are sent to the CPU monitoring the development of the video game.
- Improvements introduced in the construction of video games of the type that simulate the reactions of a body to blows, in accordance with the previous claims, **characterized in that** energy-absorbing means (9) are coupled to the base of the said rod (1).
- Improvements introduced in the construction of vid-

eo games of the type that simulate the reactions of a body to blows, in accordance with the previous claims, **characterized in that** for those cases in which it is desired to even further diminish the oscillations, a resilient element (10) is fitted into the upper end of the said rod (1).

10

15

20

25

30

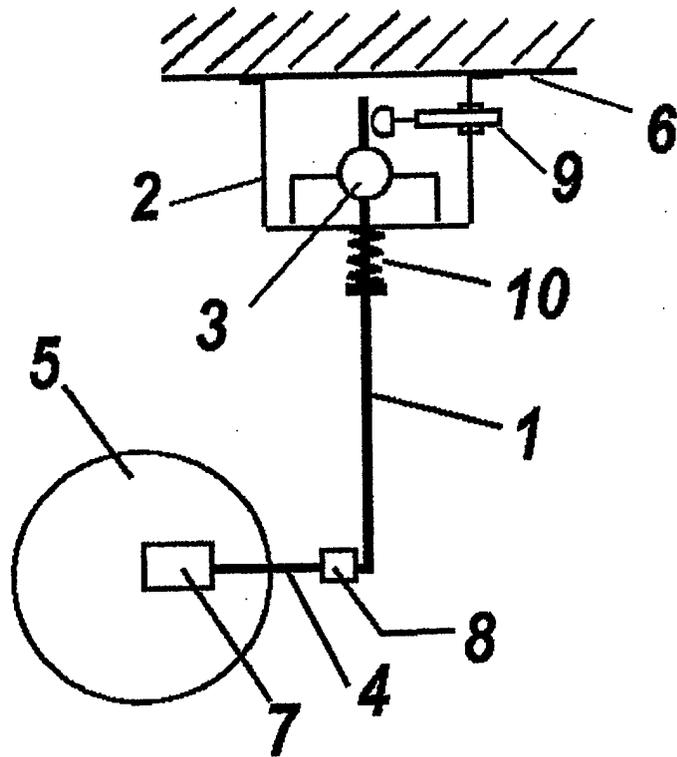
35

40

45

50

55



**Fig. 1**

INTERNATIONAL SEARCH REPORT

International application No.  
PCT/ES 02/00501

<p>A. CLASSIFICATION OF SUBJECT MATTER</p> <p><b>IPC 7:</b> A 63 B 69/24, 69/32, G 05 P 15/13</p> <p>According to International Patent Classification (IPC) or to both national classification and IPC</p>																			
<p>B. FIELDS SEARCHED</p> <p>Minimum documentation searched (classification system followed by classification symbols)</p> <p><b>IPC 7:</b> A 63 B, G05 P</p> <p>Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched</p> <p>Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)</p> <p>EPODOC, WPI, PAJ, CIBEPAT</p>																			
<p>C. DOCUMENTS CONSIDERED TO BE RELEVANT</p> <table border="1"> <thead> <tr> <th>Category*</th> <th>Citation of document, with indication, where appropriate, of the relevant passages</th> <th>Relevant to claim No.</th> </tr> </thead> <tbody> <tr> <td>A</td> <td>WO 0057966 A1 (GAELCO, S. A.) 05.10.2000, <b>page 3, column 3-page 6, column 11; figures</b></td> <td>1-4</td> </tr> <tr> <td>A</td> <td>BASE DE DATOS PAJ de JPO, JP 06-142247 A (TAIHEI GIKEN KOGYO, KK.) 24.05.1994, <b>The abstract; figure.</b></td> <td>1-3</td> </tr> <tr> <td>A</td> <td>SU 1222294 A (GI FIZICHESKOJ KULTURY IM P.F.) 07.04.1986, <b>The whole document</b></td> <td>1-3</td> </tr> <tr> <td>A</td> <td>WO 9910052 A1 (BARRET, M.) 04.03.1999</td> <td></td> </tr> <tr> <td>A</td> <td>SU 1768193 A1 (INST. ESTESTVENNYKH NAUK BURYAT) 15.10.1992</td> <td></td> </tr> </tbody> </table>		Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.	A	WO 0057966 A1 (GAELCO, S. A.) 05.10.2000, <b>page 3, column 3-page 6, column 11; figures</b>	1-4	A	BASE DE DATOS PAJ de JPO, JP 06-142247 A (TAIHEI GIKEN KOGYO, KK.) 24.05.1994, <b>The abstract; figure.</b>	1-3	A	SU 1222294 A (GI FIZICHESKOJ KULTURY IM P.F.) 07.04.1986, <b>The whole document</b>	1-3	A	WO 9910052 A1 (BARRET, M.) 04.03.1999		A	SU 1768193 A1 (INST. ESTESTVENNYKH NAUK BURYAT) 15.10.1992	
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.																	
A	WO 0057966 A1 (GAELCO, S. A.) 05.10.2000, <b>page 3, column 3-page 6, column 11; figures</b>	1-4																	
A	BASE DE DATOS PAJ de JPO, JP 06-142247 A (TAIHEI GIKEN KOGYO, KK.) 24.05.1994, <b>The abstract; figure.</b>	1-3																	
A	SU 1222294 A (GI FIZICHESKOJ KULTURY IM P.F.) 07.04.1986, <b>The whole document</b>	1-3																	
A	WO 9910052 A1 (BARRET, M.) 04.03.1999																		
A	SU 1768193 A1 (INST. ESTESTVENNYKH NAUK BURYAT) 15.10.1992																		
<p><input type="checkbox"/> Further documents are listed in the continuation of Box C. <input checked="" type="checkbox"/> See patent family annex.</p>																			
<p>* Special categories of cited documents:</p> <p>"A" document defining the general state of the art which is not considered to be of particular relevance</p> <p>"E" earlier document but published on or after the international filing date</p> <p>"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)</p> <p>"O" document referring to an oral disclosure, use, exhibition or other means</p> <p>"P" document published prior to the international filing date but later than the priority date claimed</p> <p>"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention</p> <p>"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone</p> <p>"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art</p> <p>"&amp;" document member of the same patent family</p>																			
<p>Date of the actual completion of the international search</p> <p>05.02.2003</p>	<p>Date of mailing of the international search report</p> <p><b>13.02.03</b></p>																		
<p>Name and mailing address of the ISA/ <b>S.P.T.O.</b></p> <p>Facsimile No.</p>	<p>Authorized officer</p> <p>Telephone No.</p>																		

**INTERNATIONAL SEARCH REPORT**  
Information on patent family members

International Application No  
PCT/ES 02/00501

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
WO 0057966 A1	05.10.2000	JP 2002539907T T AU 200032927 A EP 1080748 A1 ES 2151859 A1 ES 2151859 B1	26.11.2002 16.10.2000 07.03.2001 01.01.2001 16.06.200
JP 06-142247 A	24.05.1994	NONE	
SU 1222294 A	07.04.1986	NONE	
WO 9910052 A1	04.03.1999	GB 2328605 B GB 2328605 A AU 8870898 A	05.12.2001 03.03.1999 16.03.1999
SU 1768193 A1	15.10.1992	NONE	