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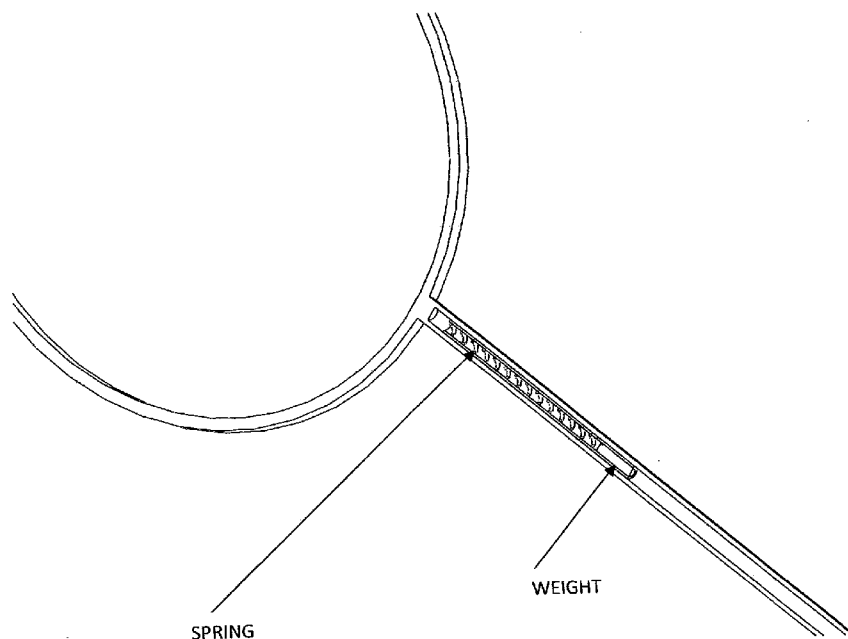
KR, KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD,  
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(54) Title: THE DEVICE FOR CHANGING BALANCE POINT (BP) OF THE RACKET



(57) Abstract: The device for changing of the balance point (BP) of the racket very easily changes the BP with the help of the spring (1) and the weight (2), on which the centrifugal force is working. The weight (2) and the spring (1) are joined together in the device and installed in the neck of the racket. When there is not enough centrifugal force, the BP of the racket stays near the center of the racket and the manipulation with the racket is easier, but when the centrifugal force is strong enough, the weight (2) moves towards the head of the racket, moving the BP also towards the head of the racket and increasing the striking force of the racket.

WO 2011/065925 A1

## THE DEVICE FOR CHANGING BALANCE POINT (BP) OF THE RACKET

The issue of the invention is the device for changing of the balance point (BP) of the racket, or more accurately, the device that changes balance point of the racket with the help of the centrifugal force. It is useful mostly for badminton rackets, but it could also be useful for other sports with ball and racket, or even bat.

Technical problem the invention solves: When BP is closer to handle, the control of the racket and its accuracy is better which is good for playing near the net. When BP is closer to the head of the racket, the force of striking the ball is bigger therefore the balls speed is bigger. Nowadays, the rackets have BP fixed and the player has to choose between two possibilities. My invention combines both possibilities in the same racket.

Related inventions:

1. US patent No.: 6,623,383 B3 and US patent No.: 4,325,549, where the BP is not automatically returned to the first position and so the user (player) is not able of intensive, dynamical play.
2. US patent No.: 6,575,854 and US patent No.: 5,779,571, which are impossible to make because adding several construction elements and thus increasing weight of the racket. Also the weight elements are travelling through the head of the racket making curved way and increasing possibility of defect and jamming.

The device for changing of balance point (BP) of the racket is made of the spring (1) and the weight (2). It is inbuilt to the neck of the racket. The invention differs from other similar inventions by position and the construction of the device inside of the neck of the racket.

Construction of the device: The weight (2) and the spring (1) are joined together. The spring (1) is closer to the head of the racket and the weight (2) is closer to the handle. The weight is changing its position by following the shape of the neck of the racket.

OPERATION: When there is no or not enough centrifugal force, the BP stays closer to the center of the racket and allows easier manipulation. When there is enough centrifugal force, the weight (2) travels closer to the head of the racket and so the BP moves closer to the head and helps to increase the striking force of the racket.

The advantages of the device:

1. The spring is compression type
2. The weight travels linearly
3. The change of BP is in optimal range
4. Only one weight
5. The material for weight is wolfram (tungstein) or gold.

## PATENT APPLICATIONS

1. The device for changing balance point of the racket

**is characteristic by the**

spring (1) and weight (2) built in the neck of the racket.

2. The device from patent application 1

**is characteristic by the**

built in single compression type spring (1).

3. The device from patent application 1

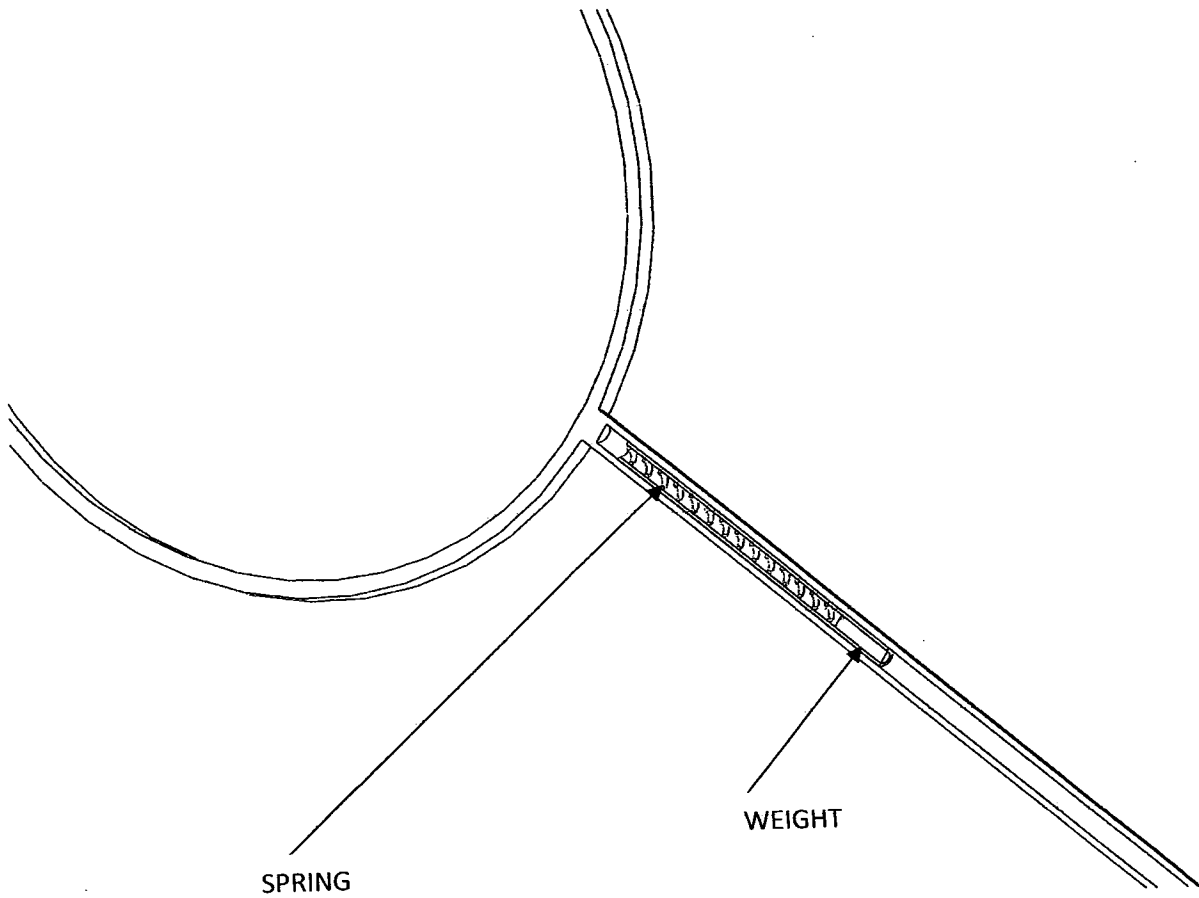
**is characteristic by the**

built in single weight (2).

4. The device from patent application 1

**is characteristic by the**

material for weight (2) is wolfram (tungstein) or gold.



**INTERNATIONAL SEARCH REPORT**

International application No  
PCT/SI2010/000067

**A. CLASSIFICATION OF SUBJECT MATTER**  
INV. A63B49/00  
ADD.

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)  
A63B

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)  
EPO-Internal

**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	DE 32 18 854 A1 (BRUNNER ADOLF) 24 November 1983 (1983-11-24) page 6, paragraph 2 - paragraph 3 page 10, paragraph 5 page 13, paragraph 2; figures 1,6 -----	1-4
X	FR 2 521 862 A1 (BOYSSON VINCENT DE [FR]) 26 August 1983 (1983-08-26) the whole document -----	1-4
X	DE 44 40 329 A1 (ROGGENKAMP KARL HEINZ [DE]; TRIMBORN LUDWIG [DE]) 15 May 1996 (1996-05-15) the whole document -----	1-4
X	GB 407 983 A (GRAHAM SHURMUR BUSH) 26 March 1934 (1934-03-26) the whole document -----	1-4
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Further documents are listed in the continuation of Box C.

See patent family annex.

\* Special categories of cited documents :

<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>
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Name and mailing address of the ISA/ European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Fax: (+31-70) 340-3016	Authorized officer  Squeri, Michele
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International application No  
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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.
X	DE 43 36 701 A1 (KOVACS ZSOLT [AT]) 4 May 1995 (1995-05-04) column 2, line 44 - line 60; figures -----	1-4
X	US 2002/160866 A1 (MATSUOKA TOYOTAKE [JP] ET AL) 31 October 2002 (2002-10-31) paragraph [0046] paragraph [0053]; figures -----	1-4

**INTERNATIONAL SEARCH REPORT**

Information on patent family members

International application No

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Patent document cited in search report	Publication date	Patent family member(s)	Publication date
DE 3218854	A1	24-11-1983	NONE
FR 2521862	A1	26-08-1983	NONE
DE 4440329	A1	15-05-1996	NONE
GB 407983	A	26-03-1934	NONE
DE 4336701	A1	04-05-1995	NONE
US 2002160866	A1	31-10-2002	JP 2002320690 A 05-11-2002 TW 547114 U 11-08-2003