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(54) **Sole with retractable spur**

(57) The present invention relates to an item of foot-
wear for riding which has a sole (1) having inside the heel

(3) a retractable spur (2).

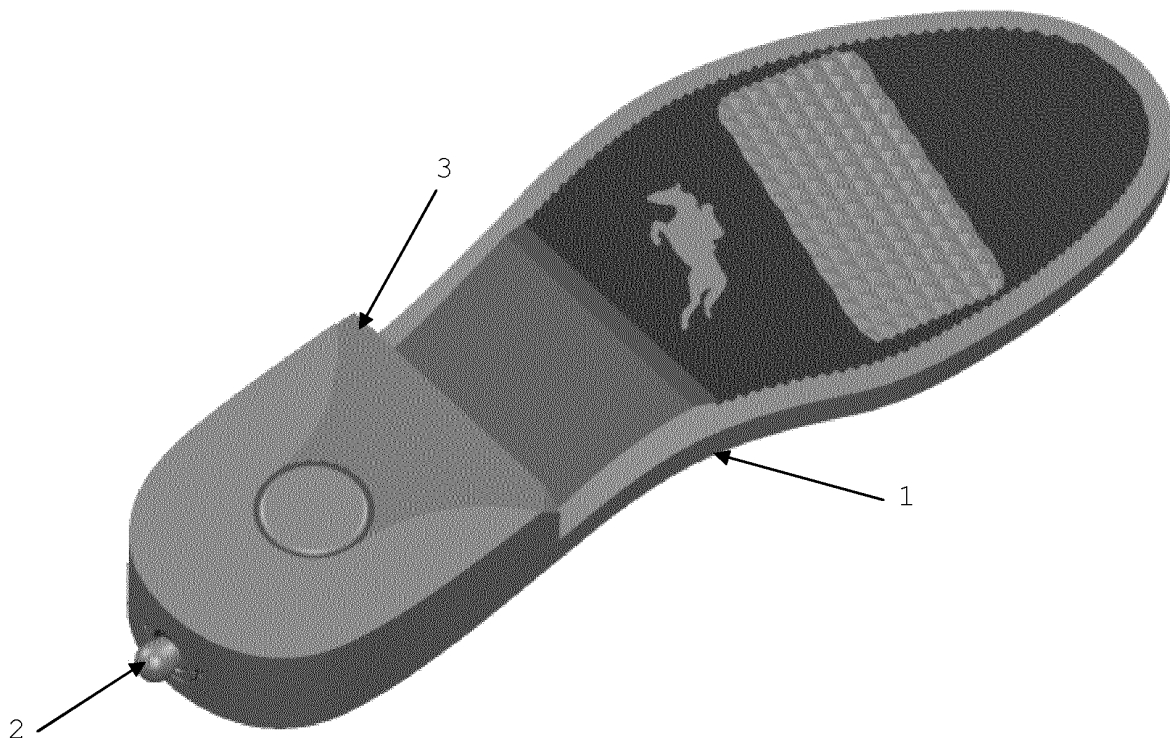


Figure 2

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Description

Field of the Invention

[0001] The present invention relates to an item of footwear for horse riding presenting a sole comprising a retractable spur inside the heel.

Background of the Invention

[0002] This invention relates generally to the field of equestrian equipments, and more specifically, to a system of spur integrated into the item of footwear, which eliminates the need for straps.

[0003] Several solutions do not require placing straps with the resulting encumbrance of the spurs on the item of footwear can be found in the prior art, but none of them refers to the solution presented in this invention. Examples of such solutions can be found in the following documents:

- US6536196 referring to a spur system without straps, with a protruding connector embedded in the item of footwear and on which a spur is screwed;
- US7913427 referring to a spur system without straps, but unlike the previous features presents connectors placed inside the item of footwear on which spurs can be screwed;
- US7454887 referring to a piece that is placed in the item of footwear and to which, subsequently, the spur is attached;
- US4642910 relates to an item of footwear to which, subsequently, the spur is attached.

[0004] The document US3693271 discloses a heel of an item of footwear with a cavity in which is placed a system of retractable spikes that can be used, for example, on ice or in climbing.

Advantages of the Invention

[0005] The main advantage of the invention is to provide a spurs system integrated in the item of footwear.

[0006] A further advantage of the invention is to provide a spur system integrated in the item of footwear and works without rowel.

[0007] Another advantage of the invention is to provide a system spurs integrated in the item of footwear that maintains its optimal functioning position (i.e., does not move out of position during use).

[0008] Another advantage of the invention is to provide a spurs system which is integrated into the item of footwear and reduces the discomfort of the animal that is to be ridden.

[0009] Still another advantage of the invention is to pro-

vide a spurs system which is integrated into the item of footwear and avoids the transportation and placement of spurs, allowing an equestrian item of footwear, in a matter of seconds and with a simple rotation and by pressing a component, to become a casual item of footwear, and vice versa a casual item of footwear becomes, in a matter of seconds by simply rotating an element, a horse riding item of footwear.

[0010] Additionally, another advantage of the invention is to provide a spurs system integrated in the item of footwear to prevent contact with dirt that occurs in the placement of the traditional spurs.

[0011] The invention also has the advantage of providing a spur system integrated in the item of footwear that by being integrated equipment is much more convenient and lightweight than traditional systems, also enabling the cost to be lower than the cost of two separate elements: article of footwear and spurs. For this reason, the spur may be a disposable element, discarded at the end of the useful life of the item of footwear.

Brief description of the drawings

[0012] These and other features can be readily understood by the accompanying drawings, which should be considered as examples and not restrictive in any way of the scope of the invention.

Figure 1 shows a top perspective view of the sole (1) and the heel (3) of the item of footwear with the retractable spur (2) retracted.

Figures 2, 3 and 4 respectively show a bottom view, a front view and a side view of the sole (1) and the heel (3) of the item of footwear with the retractable spur (2) retracted.

Figure 5 shows a side view of the sole (1) and the heel (3) of the item of footwear with the retractable spur (2) distended.

Figure 6 shows a top perspective view of the sole (1) and the heel (3) of the item of footwear where the cavity (4), which engages the support (5) for the spur and the hole (15) for passage of piston (9), is visible.

Figure 7 shows a top perspective view of the sole (1) and the heel (3) of the item of footwear where the cavity (4) which engages the support (5) for the spur with retractable spur (2) is visible.

Figure 8 shows a top perspective view of the support (5) for the spur with retractable spur (2).

Figure 9 shows a top perspective view of the support cover (6) with retractable spur (2).

Figure 10 shows a top perspective view of the re-

tractable spur (2) retracted, the tube (7) is visible having a grooved wall, slot (8), the piston (9), piston positioning rebound (10), upper notch of the slot (11), and lower notch of the slot (12), crosshead pin of fixation for assembly of the system (13).

Figure 11 shows a top perspective view of the retractable spur (2) distended is visible the tube (7) of slotted wall, slot (8), piston (9) piston positioning rebound (10), upper notch of slot (11) lower notch of the slot (12), crosshead pin of fixation for assembly of the system (13) and piston drive spring (14).

Figure 12 shows a top perspective view of the retractable spur (2), showing the detail of the fixing of the piston drive spring (14) in the crosshead pin of fixation for assembly of the system (13).

Detailed Description of the Invention

[0013] The present invention relates to an item of footwear for equitation comprising a sole that, inside the heel, has a retractable spur.

[0014] Riding item of footwear means an item of footwear that can be a riding boot, a cowboy boot, or any other item of footwear in which a spur can be advantageously used.

[0015] This spur system does not depend on straps to fix the spur on the item of footwear and is integrated in the sole (1) of the same, being part of the manufacturing process.

[0016] According to figures 1 to 5 the item of footwear comprises a sole (1) made of rubber or any equivalent material suitable for the purpose, formed by a heel (3) that in its interior, according to figures 6 and 7, has a cavity (4) in which is housed a support (5) for the spur, the retractable spur (2), the respective support cover (6) and the circular hole (15) for the passage of the piston (9).

[0017] According to Figures 8 and 9, the support (5) for the spur and its support cover (6) are made of rubber or another equivalent material suitable for the purpose, and are intended to fix the retractable spur (2) ensuring that it maintains its position for optimum operation, i.e. does not move out of position during use.

[0018] The retractable spur (2) is made of solid metal or any other equivalent material suitable for the purpose, and according to figures 10 and 11 is constituted by a tube (7) of grooved wall, slot (8), piston (9) which terminates in a splined bulb, piston positioning rebound (10), upper notch of the slot (11), lower notch of the slot (12), crosshead pin of fixation for assembly of the system (13) and piston drive spring (14). According to Figure 12, the piston drive spring (14) is secured to the crosshead pin of fixation for assembly of the system (13).

[0019] The retractable spur (2) is completely immobilized within the cavity (4), fitted within the support (5) for the spur and its support cover (6). In the retracted position, the piston (9) is retracted inside the tube (7), the

spring drive of the compressed piston (14) and the piston positioning rebound (10) is fitted in the upper notch of the slot (11). In the extended position, the piston (9) is stretched into the tube (7), the piston drive spring (14) extended and the piston positioning rebound (10) is fitted in the lower notch of the slot (12).

[0020] The retractable spur (2) passes from the retracted position to the extended position through the rotation of a quarter turn applied to the piston tip (9), causing the piston positioning rebound (10) which is fitted in the upper notch of the slot (11) to leave that position, moving to the path of the slot (8). Due to this movement, the piston drive spring (14) which is compressed inside the tube (7) and immobilized in this position, is free to extend and push the piston (9) to its extended position. The piston positioning rebound (10), after covering the entire path of the slot (8) downwardly descends under displacement pressure of the piston (9) in the same direction, fits into the lower notch of the slot (12). The shape of the slot, causes the ledged positioning of the piston (9) can not move inadvertently ensuring that the retractable spur (2) keeps in its extended position while the horseman desired.

[0021] Conversely, the retractable spur (2) passes from the extended position to the retracted position through the rotation of a quarter turn applied at the piston tip (9), causing the piston positioning rebound (10) which is fitted in the lower notch of the slot (12) leaves that position, moving to the path of the slot (8). Exerting pressure on the piston tip (9) the piston drive spring (14) which is extended inside the tube (7) is compressed by the force that the piston (9) exerts on it. The piston positioning rebound (10), after covering the entire path of the slot (8) upwards under displacement of the piston (9) in the same direction, ultimately fits into the upper notch of the slot (11), thus the piston drive spring (14) to be in its compressed position.

Claims

1. Retractable spur (2) comprising tube (7), slot (8), piston (9), piston positioning rebound (10), upper notch of the slot (11), lower notch of the slot (12), crosshead pin of fixation for assembly of the system (13) and piston drive spring (14).
2. Retractable spur (2) according to the preceding claim wherein said retractable spur it is made of solid metal or any other equivalent material suitable for the purpose.
3. Retractable spur (2) according to the preceding claims wherein the tube (7) is a tube of slotted wall.
4. Retractable spur (2) according to the preceding claims wherein the piston (9) terminates in a striatum bulbous shape.

5. Retractable spur (2) according to the preceding claims wherein the piston drive spring (14) is secured to the crosshead pin of fixation for assembly of the system (13). 5
6. Sole (1) composed of heel (3) within which there is a cavity (4) comprising a support (5) for the retractable spur (2), support cover (6) and hole (15) for passage of the piston (9). 10
7. Sole (1) according to claim 6 wherein said sole is made of rubber or another equivalent material suitable for the purpose.
8. Sole (1) according to claims 6 or 7 wherein the said hole (15) for passage of the piston (9) is a circular hole. 15
9. Sole (1) according to claims 6 to 8 wherein the support (5) for retractable spur (2) and the support cover (6) are made of rubber or another equivalent material suitable for the purpose. 20
10. Item of footwear comprising a retractable spur (2) according to any of claims 1 to 5 and a sole (1) according to any of claims 6 to 9. 25
11. Method for distension of the retractable spur (2) claimed in any of claims 1 to 5, the method comprising the following steps: 30
 - a) piston positioning rebound (10) which is fitted in the upper notch of the slot (11) leaves this position, moving to the path of the slot (8), through the rotation of a quarter turn applied to the piston tip (9); 35
 - b) piston drive spring (14) which is compressed inside the tube (7) and locked in this position, is set free to extend itself and to push the piston (9) to its distended position; 40
 - c) piston positioning rebound (10), after covering the entire path of the slot (8) downwards under displacement of the piston (9) in this same direction, fits into the lower notch of the slot (12). 45
12. Method for retraction of the retractable spur (2) claimed in any of claims 1 to 5, the method comprising the following steps:
 - a) piston positioning rebound (10) which is fitted in the lower notch of the slot (12) leaves this position, moving to the path of the slot (8), through rotation of a quarter turn applied to the piston tip (9); 50
 - b) piston drive spring (14) which is distended inside the tube (7) is compressed by the pressure exerted on the piston tip (9); 55
 - c) piston positioning rebound (10), after covering

the entire path of the slot (8) upwards under displacement of the piston (9) in the same direction, ultimately fit into the upper notch of the slot (11).

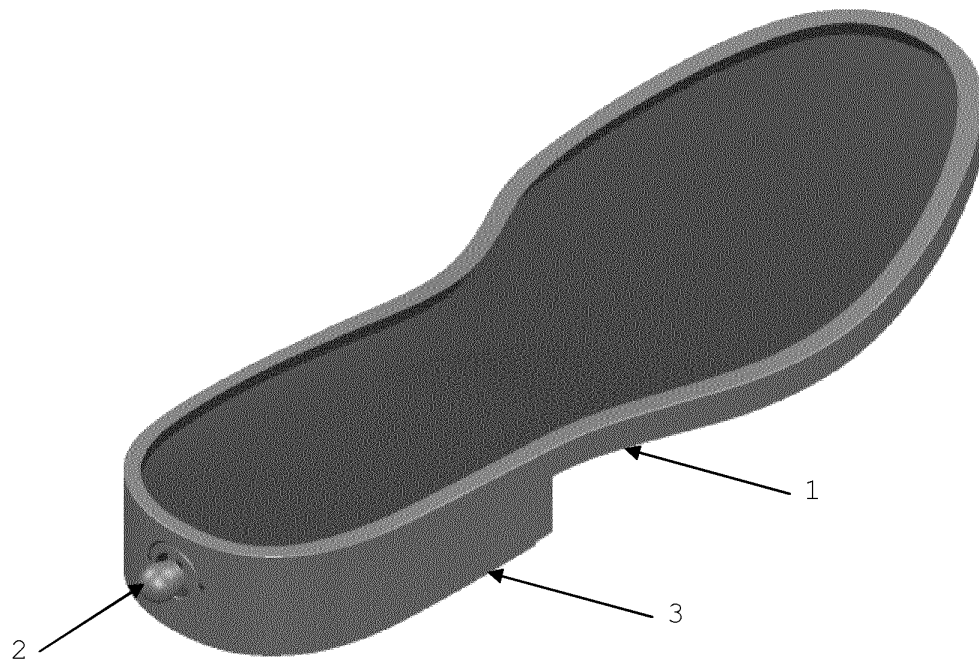


Figure 1

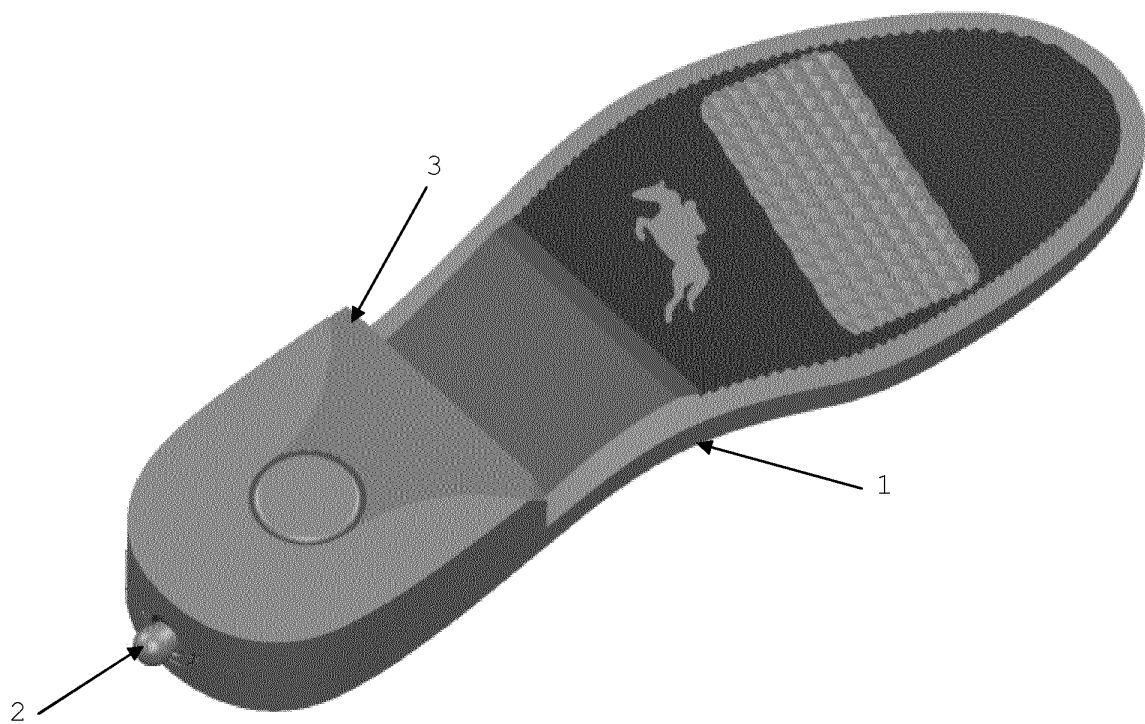


Figure 2

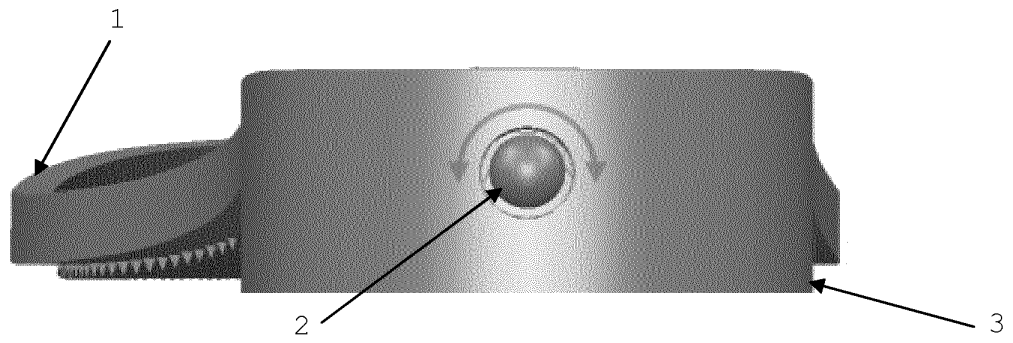


Figure 3

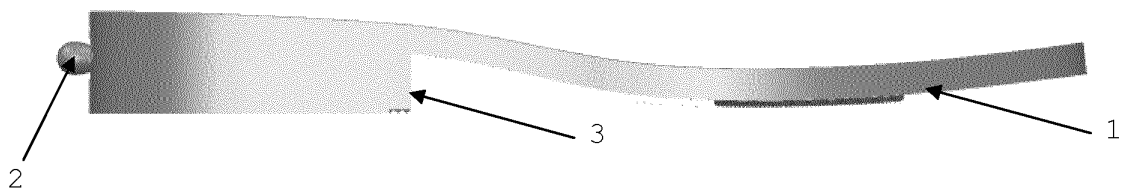


Figure 4

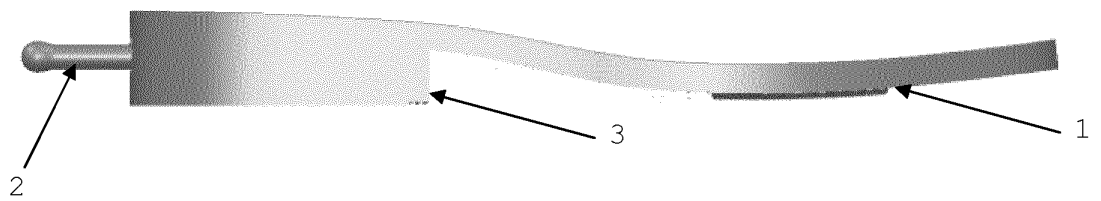


Figure 5

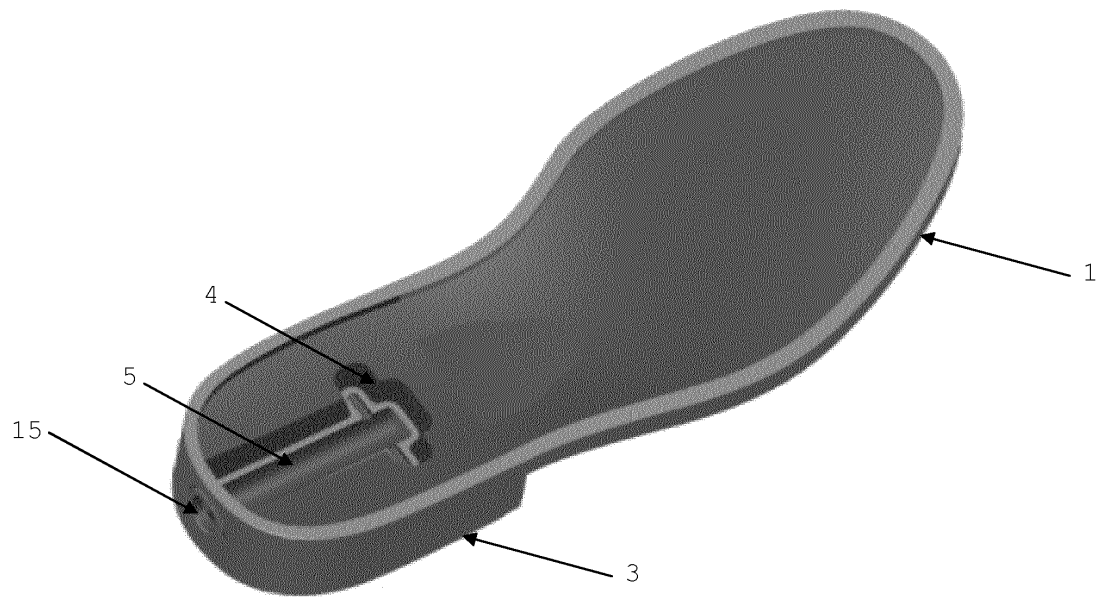


Figure 6

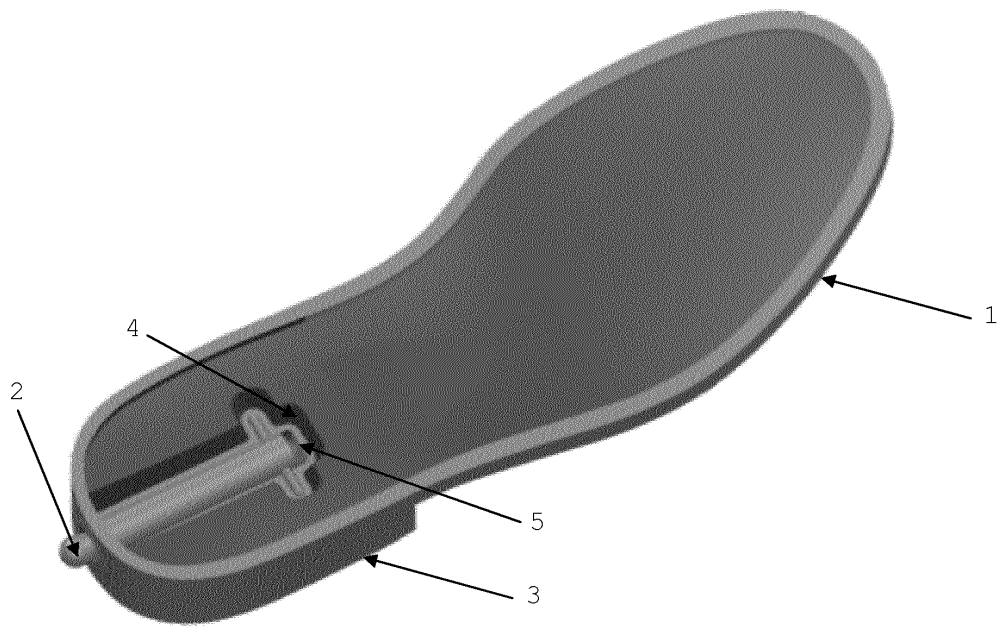


Figure 7

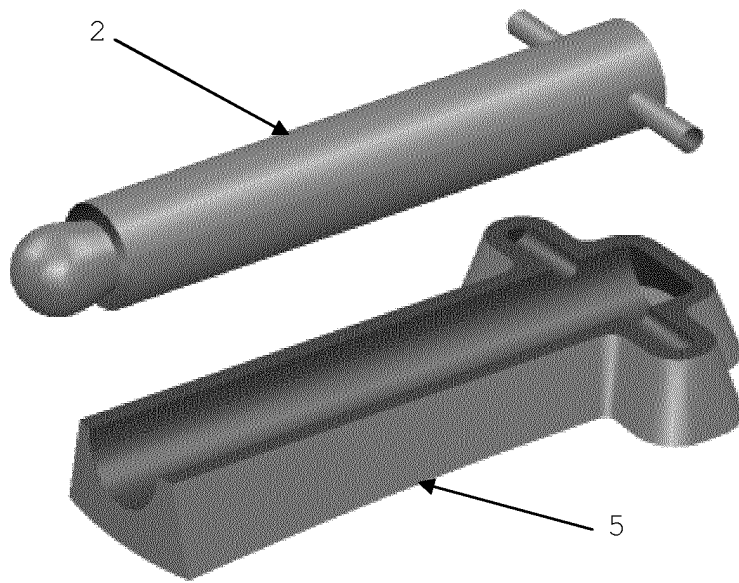


Figure 8

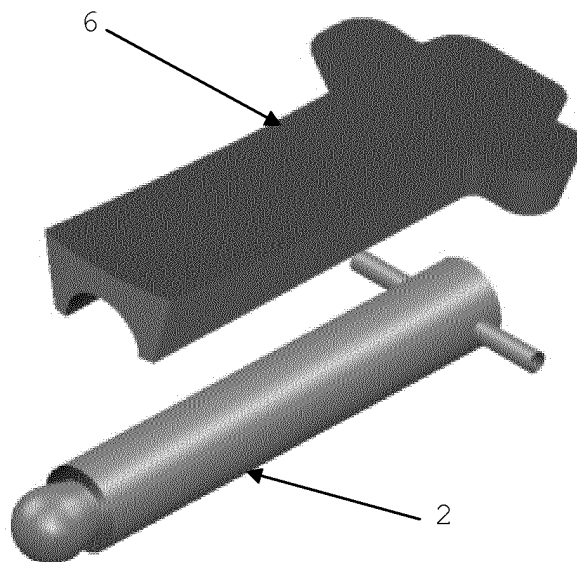


Figure 9

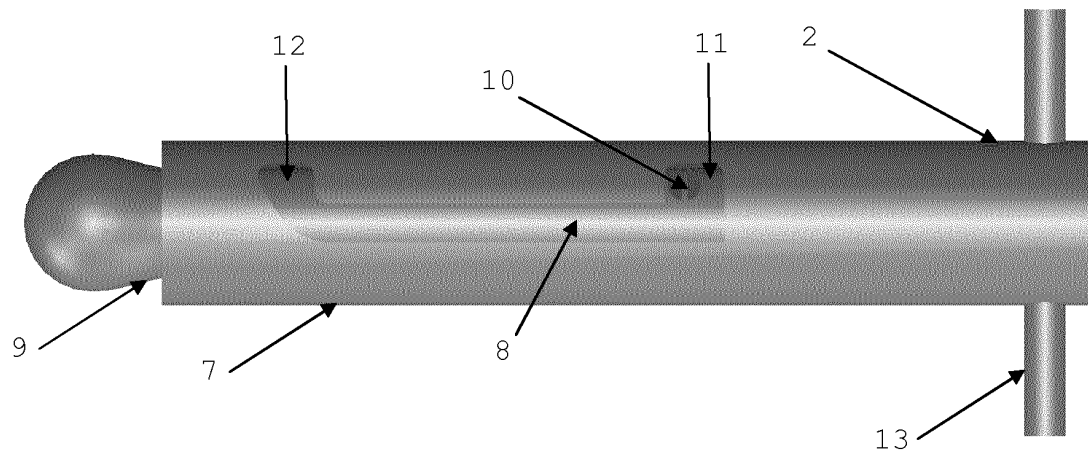


Figure 10

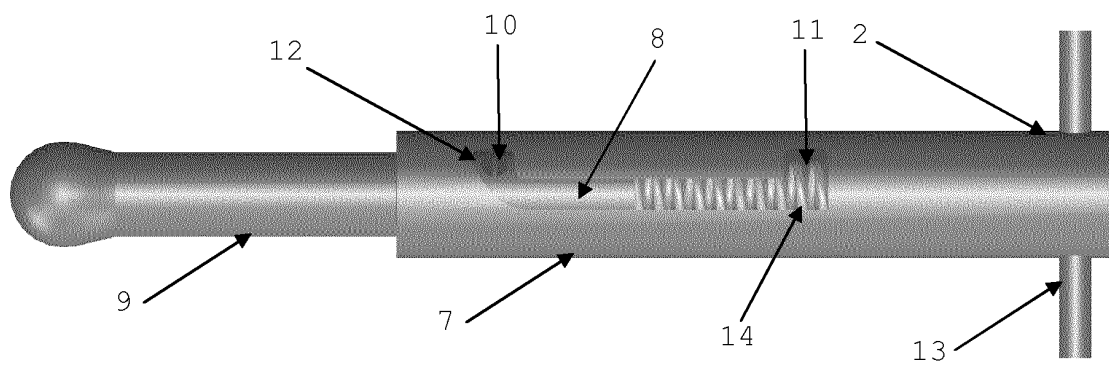


Figure 11

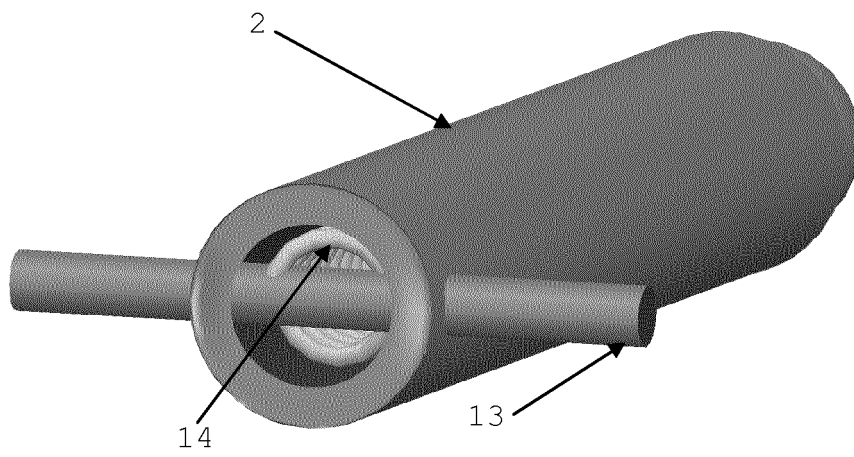


Figure 12



EUROPEAN SEARCH REPORT

Application Number
EP 14 15 2394

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
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X,D	US 4 642 910 A (CARTER, JR. ET AL.) 17 February 1987 (1987-02-17) * column 2, line 28 - column 3, line 52; figures 1-6 *	1-10	
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X,D	US 6 536 196 B2 (HARRISON ET AL.) 25 March 2003 (2003-03-25) * column 4, lines 35-49 * * column 5, lines 5-9; figures 3A-3C, 6A, 6B *	1-5,11, 12	TECHNICAL FIELDS SEARCHED (IPC) A43C
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A	US 116 404 A (BOHN) 27 June 1871 (1871-06-27) * the whole document *	1-12	
The present search report has been drawn up for all claims			
Place of search The Hague		Date of completion of the search 18 June 2014	Examiner Williams, Mark
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	

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**ANNEX TO THE EUROPEAN SEARCH REPORT
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18-06-2014

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

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