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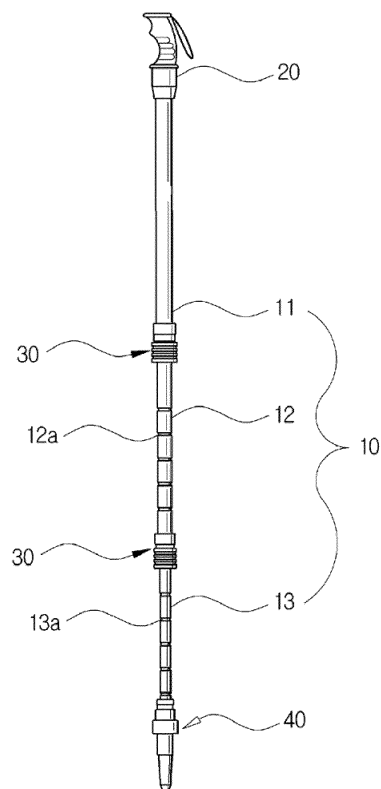
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(54) **HIKING STICK**

(57) The present invention relates to a hiking stick, which enables the lengths of multi-stage support pipes to be quickly and simply adjusted by a simple touch and elastically supports the weight of a user when walking with the stick. The present invention provides a hiking stick (10) in which support pipes (11, 12, 13) having different diameters are combined such that the lengths of the support pipes are adjusted by adjusting means (30) and a handle (20) and a support (40) are combined to the support pipes (11, 12, 13), wherein the adjusting means (30) are configured such that: a fixing pipe (31) is coupled to the lower part of the first support pipe (11), and an operating pipe (32) is elastically supported by a spring (33) in connection with the fixing pipe (31); the second support pipe (12) having locking grooves (12a) formed on the outer surface thereof is elevated by being inserted into the first support pipe (11); a connection hole (31b) that penetrates the side of the fixing pipe (31) is perforated such that a stopper ball (31a) is inserted thereinto; when the ball (31a) is pressed on the inner diameter of the operating pipe (32), the ball (31a) is locked in the locking grooves (12a) of the second support pipe (12) whereby the second support pipe (12) is fixed to the first support pipe (11); when the operating pipe (32) is raised and the ball (31a) is located in a wide extensive groove (32a) of the operating pipe (32), the ball (31a) is separated from the locking grooves (12a) of the second support pipe (12) whereby the second support pipe (12) is elevated in the first support pipe (11); and a snap ring (34) is coupled to the fixing pipe (31), thereby preventing

the separation of the operating pipe (32).

Figure 1



Description**Technical Field**

5 [0001] The present invention relates to a hiking stick, which enables the lengths of multi-stage support pipes to be quickly and simply adjusted by a simple touch and elastically supports the weight of a user when walking with the stick.

Background Art

10 [0002] A hiking stick is generally configured to decrease the consumption of physical strength in such a way to absorb about 30% of the total weight applied to user's legs, while providing a stable hiking by maintaining balanced hiking postures when the user climbs up or down mountain. When the user climbs down mountains, the hiking stick may effectively absorb the impacts applied to the user's knees, so such a hiking stick is widely used by men and women of all ages because it is regarded as one of the key hiking equipment.

15 [0003] The above-described hiking stick is configured in such a way that the length thereof may be adjusted for easier carrying. More specifically, the lengths of the multistage support pipes may be elastically adjusted by tightening or loosening the multistage support pipes in such a way to rotate a nut type tightening member.

[0004] Since the related length adjustable hiking stick is configured to elastically adjust the length by tightening or loosening the multistage support pipes in such a way to rotate a thread-engaged tightening member, it takes relatively longer time to strongly tighten or loosen the tightening member while causing complicated work. If the tightening member is not tightly engaged, the hiking stick may not withstand strong impacts when touching on the ground, so the support pipes may unintentionally slide into the other support pipes, thus breaking the parts.

20 [0005] The hiking stick is generally made from a predetermined material and is configured to have high durability, which are strong and high enough to prevent the hiking stick from bending or breaking when a user touches on the ground. When the force of about 41 kg is applied for 15 seconds to a portion about 10mm away from the center of the hiking stick, it should not be bent or broken or deformed; however many of the related hiking sticks fail to pass the resistance test based on the materials of the hiking sticks.

25 [0006] Due to the above-described problems, if the support pipes slide into the other support pipes or the hiking stick is bent or deformed, the user may lose the center of gravity when climbing down mountains, which results in critical accidents.

Disclosure of Invention**Technical Problem**

35 [0007] Accordingly, the present invention is made in an effort to improve the above-mentioned problems. It is an object of the present invention to provide a high quality and good function hiking stick characterized in that the length of a hiking stick may be quickly and easily adjusted through simple procedures, and the hiking stick may be prevented from bending in such a way to elastically support the weight.

Solution to Problem

40 [0008] To achieve the above object, there is provided a hiking stick 10 wherein support pipes 11, 12 and 13 each having different diameters are engaged to each other, and the length is elastically adjusted by means of an adjusting unit 30, and a handle 20 and a prop 40 are engaged to the tops and bottoms of the support pipes 11, 12 and 13, comprising the adjusting unit 30 which includes a fixing pipe 31 engaged to bottom of the first support pipe 11, and an operation pipe 32 which is engaged to the fixing pipe 31 and is elastically supported by means of a spring 33, wherein a second support pipe 12 on an outer circumferential surface of which a plurality of engaging grooves 12a are formed at regular intervals is inserted in the interior of the first support pipe 11 and ascends and descends therein, and an engaging hole 31 b passing through its side surface is formed at bottom of the fixing pipe 31, and a stopper ball 31 a is inserted in the engaging hole 31 b, and when the ball 31 a is pressed against the inner diameter of the operation pipe 32, the ball 31 a is caught by the engaging groove 12a of the second support pipe 12, and the second support pipe 12 is fixed in the interior of the first support pipe 11, and the operation pipe 32 ascends, and when the ball 31 a is positioned in a wider expansion groove 32a at bottom of the operation pipe 32, the ball 31 a disengages from the engaging groove 12a of the second support pipe 12, and the second support pipe 12 freely ascends or descends in the interior of the first support pipe 11, and a snap ring 34 is engaged to bottom of the fixing pipe 31 so as to prevent the operation pipe 32 from disengaging.

Advantageous effects

[0009] In the present invention, the length of the second support pipe 12 may be quickly and easily adjusted through simple procedures of pulling the operation pie 32 of the adjusting unit 30. When releasing the pulled operation pipe 32, the length-adjusted first and second support pies 11 and 12 are reliably fixed, so the length adjusting work may be simply finished while obtaining enhanced convenience when in use, which leads to the provision of a high quality and good function hiking stick. Also, a pair of springs formed of first and second springs 44a and 44b of the support unit 40 are provided so as to distribute and support weight, thus stably supporting the weight thanks to a synergic operation of the support force which balances a user's body and the buffer power, so the center of gravity may be stably maintained, while effectively absorbing impacts and preventing any deformation of the hiking stick, whereby safe mountain hiking may be obtained.

Brief Description of Drawings

[0010]

Figure 1 is a front view illustrating a state that the length of a hiking stick is extended according to the present invention. Figure 2 is a front view illustrating a state that the length of a hiking stick is contracted according to the present invention.

Figures 3a and 3b are partially enlarged cross sectional views illustrating an operation state according to the present invention.

Figure 4 is a disassembled perspective view illustrating an exemplary embodiment of the present invention.

[0011]

[Legend of Reference Numbers]

10: hiking stick	11: first support pipe
12: second support pipe	12a, 13a: engaging groove
13: third support pipe	20: handle
30: adjusting unit	31: fixing pipe
31a: ball	31b: engaging hole
31 c: shoulder	32: operation pipe
32a: expansion groove	33, 44a, 44b: spring
34, 46: snap ring	40: prop
41: first guide pipe	42: second guide pipe
43: third guide pipe	45: support member

Best modes for carrying out the invention

[0012] In order to accomplish the object, the preferred embodiments of the present invention will be described with reference to the accompanying drawings.

[0013] As illustrated in Figures 1 to 4, the length of the hiking stick may be adjusted in such a way that support pipes 11, 12 and 13 each having different diameters are engaged, and the support pipes 11, 12 and 13 are inserted into the interiors of the neighboring support pipes, thus contracting the length, and when they are withdrawn, the length extends.

[0014] The support pipes 11, 12 and 13 are configured for their lengths to be adjusted by an adjusting unit 30. A handle 20 and a prop 40 are engaged to the tops and bottoms of the support pipes 11, 12 and 13.

[0015] The construction of the thusly constituted hiking stick 10 is a known art. The most important feature of the present invention lies in the construction of an adjusting unit 30 which is configured to facilitate the lengths of the support pipes to be quickly and easily adjusted when the operation pipe 32 is simply touched.

[0016] More specifically, the adjusting unit 30 comprises a fixing pipe 31 engaged to bottom of the first support pipe 11, and an operation pipe 32 which is engaged to the fixing pipe 31 and is elastically supported by the spring 33.

[0017] The second support pipe 12 is inserted into the interior of the first support pipe 11 and may ascend and descend therein. A plurality of engaging grooves 12a are formed at regular intervals on an outer circumferential surface of the second support pipe 12.

[0018] At the bottom of the fixing pipe 31, there is formed an engaging hole 31b which passes through its side surface. A stopper ball 31 a is inserted in the engaging groove 31 b.

[0019] In a state that the stopper ball 31 a is inserted in the engaging hole 31 b, when the ball 31 a is pressed against the inner diameter of the operation pipe 32, it protrudes in an inward direction in the engaging hole 31, so the ball 31 a is caught by the engaging groove 12a of the second support pipe 12, and the second support pipe 12 is fixedly inserted in the interior of the first support pipe 11.

[0020] When the ball 31 a ascends in the fixing pipe 31 by pulling the operation pipe 32, the ball 31 a is positioned in the wider expansion groove 32a at the bottom of the operation pipe 32 and remains free, so the ball 31 a separates from the engaging groove 12a of the second support pipe 12, and the second support pipe 12 may freely ascend or descend in the interior of the first support pipe 11.

[0021] A snap ring is engaged to the bottom of the fixing pipe 31, thus preventing the operation pipe 32 separating and moving toward the bottom of the fixing pipe 31, and a shoulder 31 c is formed at top of the fixing pipe 31, so the operation pipe 32 may move between the shoulder 31 c and the snap ring 34 in a state that the operation pipe 32 is elastically supported by the spring 33.

[0022] As illustrated in Figure 3a, in the present invention, the stopper ball 31 a is engaged to the engaging groove 12a of the second support pipe 12. In a state that the second support pipe 12 is fixedly inserted in the interior of the first support pipe 11, when the operation pipe 32 is pulled in an upward direction, as illustrated in Figure 3b, the ball 31 a is positioned in the wider expansion groove 32a at bottom of the operation pipe 32 and remains free. When the operation pipe 32 is released at a predetermined length while freely moving the second support pipe 12, the operation pipe 32 descends by recovery force of the spring 33, and the stopper ball 31 a is pressed against the inner diameter of the operation pipe 32 and is caught by the engaging groove 12a of the second support pipe 12, so the length of the second support pipe 12 is adjusted and fixed.

[0023] The length of the second support pipe 12 can be quickly and easily adjusted by a simple procedure of pulling the operation pipe 32. When the pulled operation pipe 32 is released, the first and second support pipes 11 and 12 whose lengths have been already adjusted may be stably fixed, so it is possible to provide a high quality and good function hiking stick whose length may be easily adjusted, while enhancing convenience when in use.

[0024] Also, the stopper ball 31 a, the fixing pipe 31, the operation pipe 32 and the first and second support pipes 11 and 12 are all made from stainless steel, so once the stopper ball 31 a is caught by the engaging groove 12a of the second support pipe 12, it is stably fixed and won't easily separate from the engaging groove 12a, which makes sure that requirements of the resistance test may be met while substantially supporting the weight. So, the present invention may provide a hiking stick having a high competitiveness and good function by improving the problems encountered in the conventional art wherein the hiking stick is inserted into the interior of the support pipes and is bent or deformed, which causes critical accident when a user climbs down mountains and then loses the center of gravity.

[0025] The adjusting unit 30 may be also engaged to bottom of the second support pipe 12, thus adjusting the length of the third support pipe 13 inserted in the second support pipe 12. The engaging groove 13a is also formed at the third support pipe 13, so the ball 31 a of the adjusting unit 30 may be engaged thereto.

[0026] At this time, the lengths of the second support pipe 12 and the third support pipe 13 may be together adjusted by means of two adjusting units 30 for thereby more greatly adjusting the length of the hiking stick 10. The length of the hiking stick may be adjusted much shorter, thus enhancing convenience when carrying the hiking stick.

[0027] The prop 40 comprises a first guide pipe 41 fixedly engaged to bottom of the third support pipe 13, a second guide pipe 42 engaged to the first guide pipe 41, a third guide pipe 43 engaged to the second guide pipe 42, and first and second springs 44a and 44b which are inserted between the first and second guide pipes 41 and 42 and between the second and third guide pipes 42 and 43 for thereby elastically supporting the first guide pipe 41. To bottom of the third guide pipe 43, a cemented carbide support member 45 is engaged.

[0028] To bottom of the first guide pipe 41, a snap ring 46 is engaged for thereby preventing the second guide pipe 42 from disengaging and moving toward bottom of the first guide pipe 41.

[0029] In the above-described construction, since the first guide pipe 41 fixedly against the third support pipe 13 is elastically supported by means of the first and second springs 44a and 44b, the weight applied when the hiking stick 10 is touched may be elastically absorbed, by means of which it is possible to prevent the hiking stick 10 from bending or breaking or deforming, which results in safe hiking.

[0030] Since the two springs consisting of the first and second springs 44a and 44b are configured to support weight in such a way to distribute the weight, the support force maintaining a balance of a user's body and the buffer powder absorbing the impacts synergically operate, thus implementing a good function hiking stick, so the present invention may absorb impacts while maintaining the center of gravity by stably supporting the weight and prevent any deformation of the hiking stick, which leads to safe hiking.

[0031] The above-described exemplary embodiments of the present invention are provided for illustrative purposes and should understood in such a way that the above-described examples are not limited by any of the details of the foregoing description, unless otherwise specified, but rather should be construed broadly within its spirit and scope as defined in the appended claims, and therefore all changes and modifications that fall within the meets and bounds of the claims, or equivalences of such meets and bounds are therefore intended to be embraced by the appended claims.

Claims

1. A hiking stick 10 wherein support pipes 11, 12 and 13 each having different diameters are engaged to each other, and the length thereof is elastically adjusted by means of an adjusting means 30, and a handle 20 and a prop 40 are engaged to the tops and bottoms of the support pipes 11, 12 and 13, comprising:

the adjusting means 30 which includes a fixing pipe 31 engaged to bottom of the first support pipe 11, and an operation pipe 32 engaged to the fixing pipe 31 and is elastically supported by means of a spring 33, wherein a second support pipe 12 on an outer circumferential surface of which a plurality of engaging grooves 12a are formed at regular intervals, is inserted in the interior of the first support pipe 11 and ascends and descends therein, and an engaging hole 31 b passing through its side surface is formed at bottom of the fixing pipe 31, and a stopper ball 31 a is inserted in the engaging hole 31 b, and when the ball 31 a is pressed against the inner diameter of the operation pipe 32, the ball 31 a is caught by the engaging groove 12a of the second support pipe 12, and the second support pipe 12 is fixed in the interior of the first support pipe 11, and the operation pipe 32 ascends, and when the ball 31 a is positioned in a wider expansion groove 32a at bottom of the operation pipe 32, the ball 31 a disengages from the engaging groove 12a of the second support pipe 12, and the second support pipe 12 freely ascends or descends in the interior of the first support pipe 11, and a snap ring 34 is engaged to bottom of the fixing pipe 31 so as to prevent the operation pipe 32 from disengaging.

2. The stick of claim 1, wherein the adjusting means 30 is engaged to bottom of the second support pipe 12, thus adjusting the length of the third support pipe 13 inserted in the second support pipe 12.

3. The stick of claim 1, wherein the prop 40 comprises a first guide pipe 41 engaged to bottom of the third support pipe 13, a second guide pipe 42 engaged to the first guide pipe 41, a third guide pipe 43 engaged to the second guide pipe 42, and first and second springs 44a and 44b inserted between the first and second guide pipes 41 and 42 and between the second and third guide pipes 42 and 43 for thereby elastically supporting the first guide pipe 41, and to bottom of the third guide pipe 43, a cemented carbide support member 45 is engaged.

Figure 1

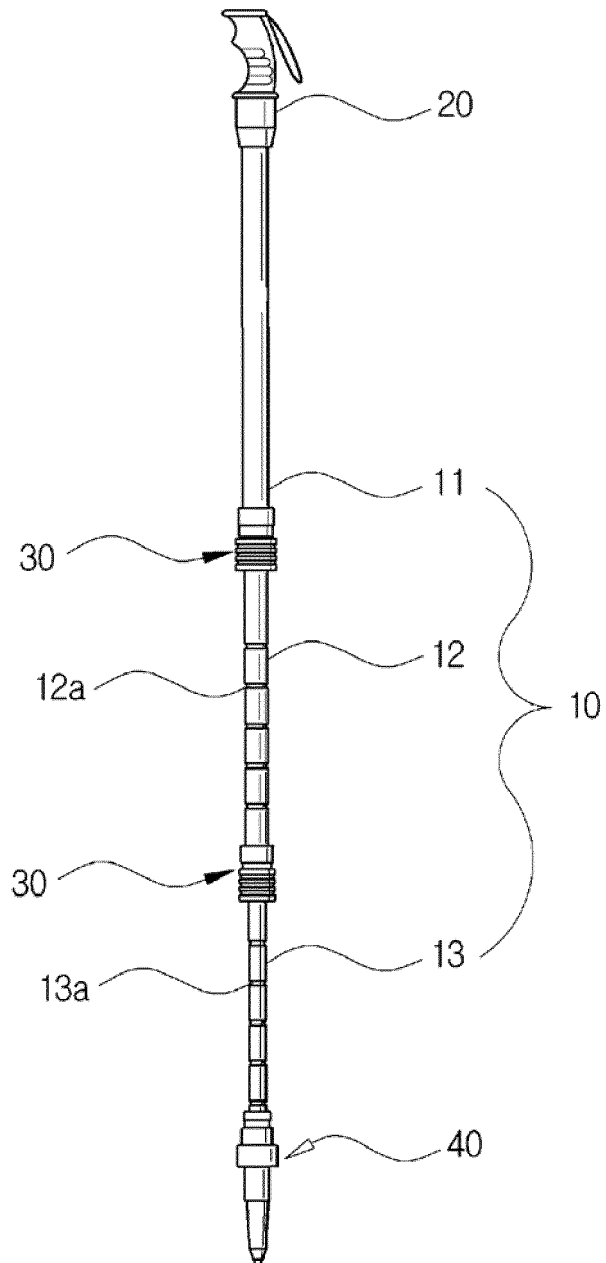


Figure 2

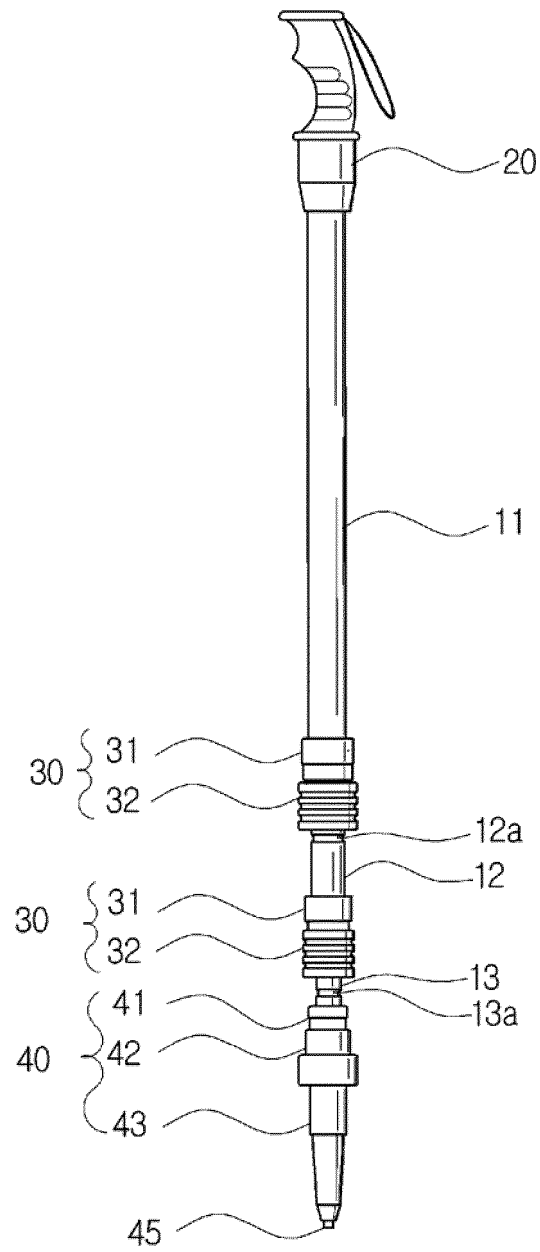


Figure 3a

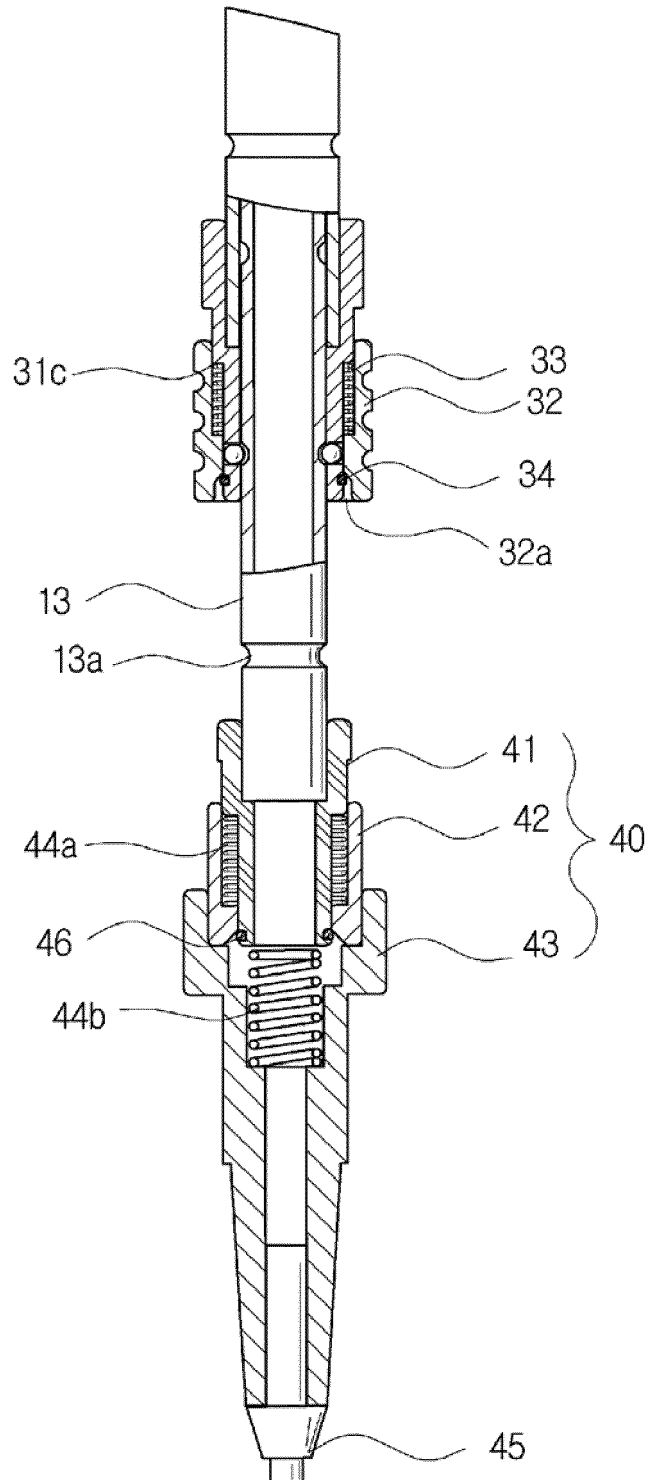


Figure 3b

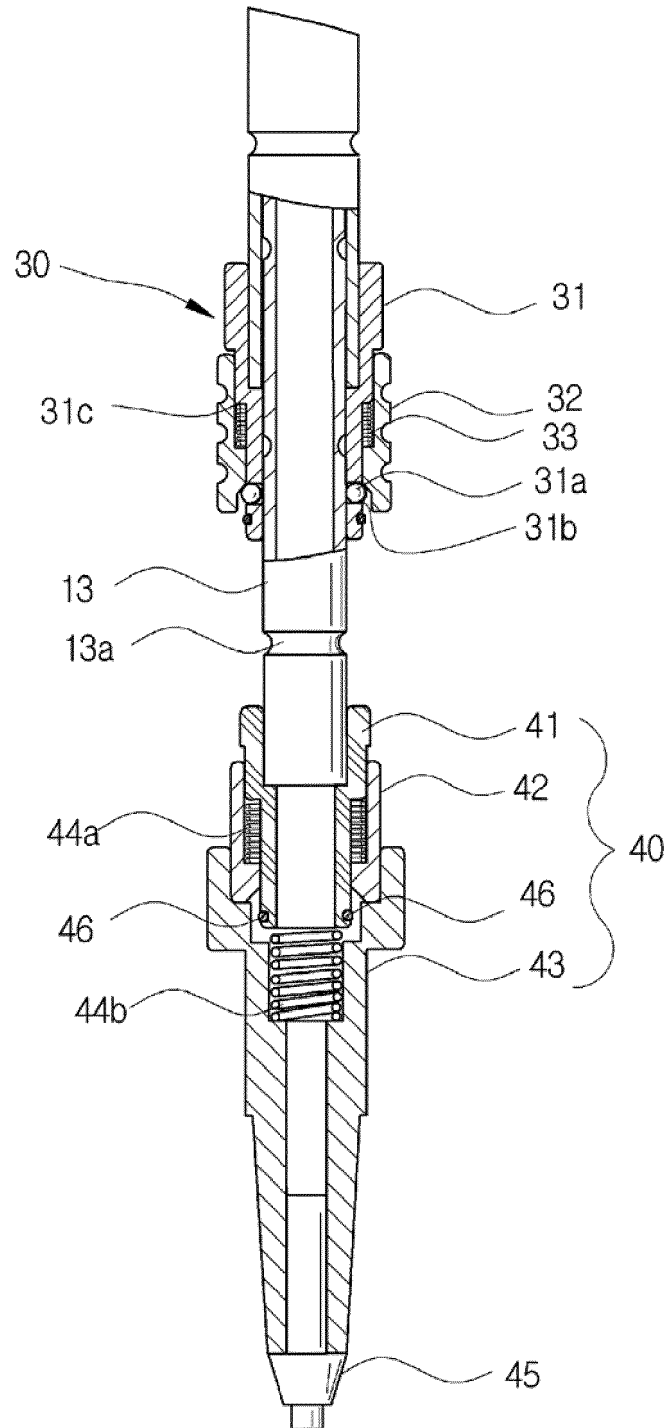
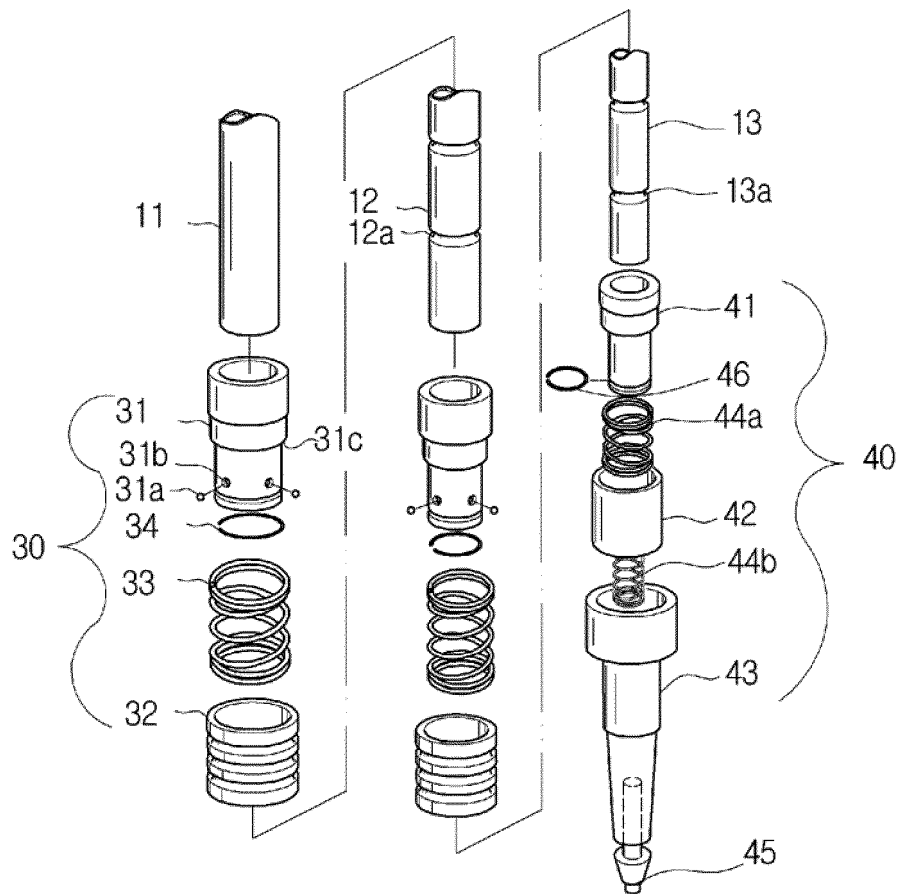


Figure 4



INTERNATIONAL SEARCH REPORT

International application No.

PCT/KR2013/002477

A. CLASSIFICATION OF SUBJECT MATTER

A63B 29/08(2006.01)i, A45B 9/02(2006.01)i, A45B 1/00(2006.01)i

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 29/08

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Korean Utility models and applications for Utility models: IPC as above

Japanese Utility models and applications for Utility models: IPC as above

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

eKOMPASS (KIPO internal) & Keywords: hiking, stick, ball, fixing groove, snap ring

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	KR 20-2011-0006520 U (PARK, Yeon Oh) 29 June 2011 See abstract and the drawings.	1-3
A	KR 20-0184477 Y1 (KIM, Young Bo) 01 June 2000 See abstract and the drawings.	1-3
A	US 04977914 A (SMERKER, Charles W.) 18 December 1990 See abstract and the drawings.	1-3
A	KR 10-1056940 B1 (LEE, Myeong A) 12 August 2011 See abstract and the drawings.	1-3

☐ Further documents are listed in the continuation of Box C.☒ See patent family annex.

* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

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Date of the actual completion of the international search

28 AUGUST 2013 (28.08.2013)

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29 AUGUST 2013 (29.08.2013)

Name and mailing address of the ISA/KR

 Korean Intellectual Property Office
Government Complex-Daejeon, 189 Seonsa-ro, Daejeon 302-701,
Republic of Korea

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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	Publication date
KR 20-2011-0006520 U	29/06/2011	NONE	
KR 20-0184477 Y1	01/06/2000	NONE	
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