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(54) Title: SIT-UP BOARD WITH HEEL BLOCK

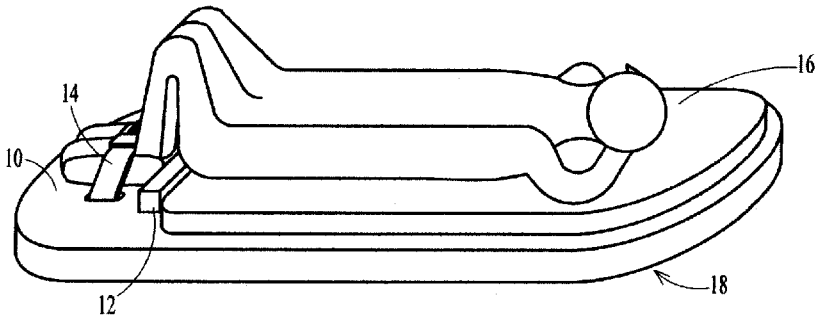

Figure 3

(57) **Abstract:** A sit-up board is provided comprising a non-slip backboard, a heel block on the backboard, and a foot strap in front of the heel block configured to hold a user's feet together and against both the heel block and the backboard during sit-ups.

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SIT-UP BOARD WITH HEEL BLOCK

(1) Technical Field

The disclosure relates to exercise equipment, and more particularly, exercise equipment for sit-ups including means for holding feet in position.

(2) Background

Many physical agility tests, especially those given by military or police academies, require sit-ups as one of the tests. Often during a test, someone will firmly hold a person's feet to the ground while the person is performing sit-ups. It would be useful to be able to practice sit-ups with feet firmly held to the ground without relying on another person to do this during each practice session. It may also be beneficial for such academies and/or fitness centers to utilize these devices for training and testing purposes.

Several US Patents disclose exercise equipment that can be used for practicing sit-ups, including 9,084,914 (Hoffman), 9,242,137 (Hoffman), and 9,592,416 (Tharpe), but these references are different from the present disclosure.

SUMMARY

A primary objective of the present disclosure is to provide a device to firmly hold a person's feet in place while performing natural, unassisted sit-ups.

Another objective is to provide a device to firmly hold a person's feet in place while performing natural, unassisted sit-ups with only a solid/smooth surface required, indoors or outdoors.

In accordance with the objectives of the present disclosure, a sit-up board is provided comprising a non-slip backboard, a heel block on the backboard, and a foot strap in front of the heel block configured to hold a

user's feet together and against both the heel block and the backboard during sit-ups.

Also in accordance with the objectives of the present disclosure, a method for performing sit-ups is achieved. A sit-up board is provided comprising a non-slip backboard, a heel block on the backboard, and a foot strap in front of the heel block. A user places his or her feet together and against both the heel block and the backboard and tightens the foot strap around and over both feet. The user performs sit-ups wherein the feet are held firmly in place during the sit-ups.

Also in accordance with the objectives of the present disclosure, a sit-up board is provided comprising a non-slip backboard, a cushioning pad on the backboard configured to cushion a user's back and/or buttocks, a heel block on the backboard, a foot strap in front of the heel block configured to hold a user's feet together and against both the heel block and the backboard during sit-ups, a first set of legs on a bottom surface at a top end of the backboard configured to unfold to hold the backboard in an inclined position, and a second set of legs on the bottom surface at a bottom end of the backboard configured to unfold to hold the backboard in a declined position.

BRIEF DESCRIPTION OF THE DRAWINGS

In the accompanying drawings forming a material part of this description, there is shown:

Fig. 1 illustrates a top view of a first preferred embodiment of the present disclosure.

Fig. 2 illustrates a top view of a second preferred embodiment of the present disclosure.

Fig. 3 illustrates a perspective view of the second preferred embodiment of the present disclosure.

Fig. 4 illustrates a perspective view of the first preferred embodiment of the present disclosure.

Fig. 5A illustrates a bottom view of a preferred embodiment of the present disclosure.

Fig. 5B illustrates an alternative bottom view of a preferred embodiment of the present disclosure.

Fig. 6A illustrates a perspective view of a third preferred embodiment of the present disclosure in an inclined position.

Fig. 6B illustrates a perspective view of the third preferred embodiment of the present disclosure in a declined position.

Fig. 6C illustrates a bottom view of the third preferred embodiment of the present disclosure.

Fig. 7A illustrates a perspective view of a fourth preferred embodiment of the present disclosure in a folded position.

Fig. 7B illustrates a perspective view of the fourth preferred embodiment of the present disclosure in an unfolded position.

DETAILED DESCRIPTION

It is very difficult to perform a proper sit-up without having one's feet held in place. Physical fitness tests, especially in the military and at police academies, for example, require that one's feet be held in place during sit-ups. This requires the individuals to team up with partners, thus losing efficiency. In preparation for such tests and for one's own fitness goals, it is desirable to practice sit-ups in preparation for such a test while having one's

feet held in place. Often, another person is not available to hold one's feet in place in the practice setting. Placing feet under heavy furniture is awkward; the furniture may move or feet could slide out from under the furniture. It is desirable to have a device that would allow a person to perform the required sit-ups alone or without the need for switching between foot holder and sit-up performer, thus saving time and guaranteeing a firm grip on the performer's feet.

The device of the present disclosure provides a solution to the problem of holding one's feet in place during sit-ups. The device holds a user's feet in place in two ways. First, the user's heels abut a heel block to keep the feet from sliding back toward one's body. Next, a strap runs from an outside of one foot, over the top of both feet adjacent to the ankles, and to the outside of the second foot, holding the feet together and down on the device. The strap prevents the feet from moving forward away from the body and from moving upwards away from the surface.

Refer to Figs. 1 and 2 where two preferred embodiments of the present disclosure are illustrated. In Fig. 1, the device 10 has a length such that an average sized person's shoulder blades will touch the surface of the device when the person is lying prone on the device so that it can be used for official testing. Preferably, the device will have a length of at least four feet in order to achieve this objective. However, in certain situations and for practicing purposes, the device could be shorter so that only a person's feet and buttocks fit on the board. This option 11 is shown in Fig. 2.

The sit-up device is preferably made of a lightweight yet strong composite plastic material with an optional metal core for rigidity. The heel block 12 is preferably molded as part of the backboard 10 or 11. The heel block should have a length of about 8 to 10 inches, a width of about 1/4 inch if made from a strong metal to 2 inches if made of a composite or hollow molded material or wood, and a height of 1.5 to 2.5 inches. Attached to the backboard 10 or 11 is a strap 14. Preferably, the strap 14 is treaded down through a first slot 13, underneath the backboard, and up through a second slot 13. Fig. 1 shows the strap 14 in a closed position. Fig. 2 shows the

strap an open position. The foot strap 14 must be strong and secure so as to avoid opening during the sit-up repetitions, yet easy enough to get in and out of quickly. Preferably, a cam buckle, such as used for a seatbelt, and a lap belt type strap will be used. It must be easy to strap and unstrap, yet very secure and adjustable for different sized footwear. For example, Fig. 1 shows an automobile-type buckle 15A/15B. Fig. 2 shows an airline-type cam buckle 17A/17B. Any other suitable strap and closure mechanism may be employed.

A thin, durable, cleanable, flat pad 16 is attached on the entire top side of the backboard 10 or 11 to cushion the lower back and buttocks, or just the buttocks, respectively, during the movement. The pad 16 is equivalent to a gym mat or yoga mat in that it does not enhance or hamper a traditional physical agility test sit-up. Preferably the pad 16 is permanently attached to the top surface of the backboard 10 or 11 with adhesives so that it cannot accidentally come loose during use. A hook and loop attachment option may be viable so that the pad can be replaced if the pad wears out or to offer thicker pad options for certain users' comfort.

The bottom surface of the backboard 18, shown in Figs. 5A and 5B, is fitted with a non-slip rubber material 20 so that the unit will not slide on a slick floor as in a gymnasium during the sit-ups. The rubber material may be placed in strips 20 as shown in Fig. 5A, or in other orientations including coverage of the entire bottom surface, as shown in Fig. 5B, if desired.

The sit-up board of the present disclosure can be stored easily for use in many settings. Police academies, schools, fitness centers, and homeowners would be interested in using this device. It can be slid under a bed, in a closet, behind a couch, etc., in home use when being stored as it will be relatively flat and lightweight. In a school or academy type setting, a specially designed wheeled rack can be used so the units can be stacked together upright or flat and rolled into a storage area.

Figs. 3 and 4 illustrate a preferred use of the device of the present disclosure. Fig. 3 illustrates the longer backboard 10 where the user's shoulder blades are supported by the backboard. Strap 14 is shown buckled and tightened over and around the user's feet. The user's heels are abutted to the heel block 12. In Fig. 4, a shorter backboard 11 is provided. Only the user's feet and buttocks are accommodated by the backboard 11. It will be understood that the figures are not drawn toscale.

Figs. 6A-6C illustrate a third preferred embodiment of the present disclosure. In a practice setting, it may be desirable to allow a user to achieve a slight incline or decline position. This would be achieved by integrating a short fold down leg system on the top end and bottom end of the backboard. Fig. 6C illustrates the underside 18 of the backboard 10. Legs 32 are shown in a folded position at a top end of the backboard and legs 36 are shown in a folded position at a bottom end of the backboard. Legs 32 and 36 clip into recesses 34 and 38, respectively, in the bottom surface 18 of the backboard.

As shown in Fig. 6A, for an inclined position, the legs 32 at the top end of the backboard 10 are unfolded and locked into place using bar 40, for example. Preferably, the legs have a height H of between about 8 and 14 inches. Fig. 6B shows bottom legs 36 locked in the unfolded position to form a decline. For stability, the legs should be as wide as the board or close to it. Rubber grips 42 on the bottom of the legs will prevent them from sliding on the smooth surface of a floor. The legs could have several height settings using sets of holes 44 with a locking pin that goes through the holes.

In a fourth preferred embodiment of the present disclosure, shown in Figs. 7A and 7B, a fold up model backboard is shown. The backboard has two sections 100A and 100B. As illustrated in Fig. 7A, hinge 102 allows 100B to fold underneath 100A. The backboard can be used in this position, similarly to the short backboard 11 that accommodates the user's feet and buttocks only. If a longer backboard is desired to support the user's shoulder blades, as in backboard 10, as illustrated in Fig. 7B, the underneath section 100B is unfolded and locked into the open position adjacent to section 100A. Comfort pad section 16A abuts section 16B. For example, a thin metal flat

bar could be slid into slots on each side of the hinged area, thus not allowing it to fold or unfold until the bar is removed. This backboard option 100A/100B allows for either a short or a long backboard and may be more easily stored in the folded position.

A handle 104 could be incorporated somewhere on the end for short term transportation. Possibly straps could be fitted onto the backboard so that the user could wear it like a backpack for efficient prolonged transportation.

The sit-up board of the present disclosure is lightweight, compact, and easy to use to hold a person's feet firmly in place while practicing sit-ups or while taking an official sit-up fitness test.

Although the preferred embodiment of the present disclosure has been illustrated, and that form has been described in detail, it will be readily understood by those skilled in the art that various modifications may be made therein without departing from the spirit of the disclosure or from the scope of the appended claims.

What is claimed is:

1. A sit-up board, comprising:

a non-slip backboard;

a heel block on said backboard; and

a foot strap in front of said heel block configured to hold a user's feet together and against both said heel block and said backboard during sit-ups.

2. The device according to claim 1 further comprising a cushioning pad on said backboard configured to cushion a user's back and/or buttocks.

3. The device according to claim 2 wherein said cushioning pad is permanently attached to said backboard.

4. The device according to claim 2 wherein said cushioning pad is removably attached to said backboard.

5. The device according to claim 1 wherein a bottom surface of said backboard is non-slip.

6. The device according to claim 5 wherein said bottom surface is covered with a rubberized material.

7. The device according to claim 5 comprising rubber strips on said bottom surface.

8. The device according to claim 1 wherein said heel block has a length of between 8 and 10 inches, a width of between 0.25 and 2 inches, and a height of between 1.5 and 2.5 inches.

9. The device according to claim 1 wherein said heel block is molded as part of said backboard.

10. The device according to claim 1 wherein said foot strap comprises:

a strap threaded down through a first slot in said backboard, across a bottom surface of said backboard, and up through a second slot in said backboard;

a buckle attached to a first end of said strap; and

a buckle receiver attached to a second end of said strap wherein said buckle is configured to be held firmly in by said buckle receiver and wherein said strap is configured to be buckled and tightened to hold a user's feet together and in place on said backboard.

11. The device according to claim 1 further comprising:

a first set of legs on a bottom surface at a top end of said backboard configured to unfold to hold said backboard in an inclined position; and

a second set of legs on said bottom surface at a bottom end of said backboard configured to unfold to hold said backboard in a declined position.

12. The device according to claim 1 wherein said backboard:

has a length configured to support a user's feet and buttocks; or

has a length configured to support a user's feet, buttocks, and shoulder blades.

13. The device according to claim 1 wherein said backboard has a first section comprising said heel block and said foot strap and a second section folded under said first section wherein:

said first section is configured to support a user's feet and buttocks; and

said second section is configured to be unfolded and locked into a position abutting said first section wherein said second section is further configured to support said user's shoulder blades.

14. A method of performing sit-ups comprising:

providing a sit-up board, comprising:

a non-slip backboard;

a heel block on said backboard; and

a foot strap in front of said heel block;

placing a user's feet together and against both said heel block and said backboard;

tightening said foot strap around and over both feet; and

performing sit-ups wherein said feet are held firmly in place during said sit-ups.

15. The method according to claim 14 wherein said device further comprises a cushioning pad on said backboard configured to cushion a user's back and/or buttocks.

16. The method according to claim 14 wherein said non-slip backboard comprises a bottom surface having a rubberized material thereon.

17. The method according to claim 14 wherein said foot strap comprises:

a strap threaded down through a first slot in said backboard, across a bottom surface of said backboard, and up through a second slot in said backboard;

a buckle attached to a first end of said strap; and

a buckle receiver attached to a second end of said strap; and

wherein said tightening said foot strap comprises:

inserting said buckle into said buckle receiver; and

tightening said strap over said feet thereby holding said feet down against said backboard and back against said heel block.

18. The method according to claim 14 wherein said sit-up board further comprises a first set of legs folded against a bottom surface at a top end of said backboard a and second set of legs folded against said bottom surface at a bottom end of said backboard, further comprising:

performing sit-ups at an incline by unfolding said first set of legs and locking said first set of legs in place to hold said backboard in an inclined position; and

performing sit-ups at a decline by unfolding said second set of legs and locking said second set of legs in place to hold said backboard in a declined position.

19. The method according to claim 14 wherein said backboard has a first section comprising said heel block and said foot strap and a second section folded under said first section, further comprising:

unfolding said second section and locking said second section into a position abutting said first section wherein said first and second section together support a user's feet, buttocks, and shoulder blades; and

folding said second section under said first section wherein said first section and second section together support a user's feet and buttocks.

20. A sit-up board, comprising:

a non-slip backboard;

a cushioning pad on said backboard configured to cushion a user's back and/or buttocks;

a heel block on said backboard;

a foot strap in front of said heel block configured to hold a user's feet together and against both said heel block and said backboard during sit-ups;

a first set of legs on a bottom surface at a top end of said backboard configured to unfold to hold said backboard in an inclined position; and

a second set of legs on said bottom surface at a bottom end of said backboard configured to unfold to hold said backboard in a declined position.

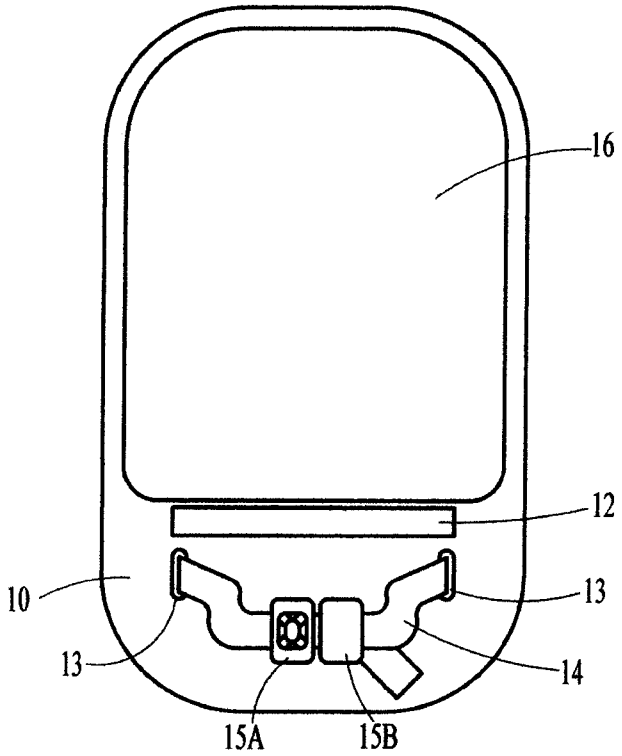

Figure 1

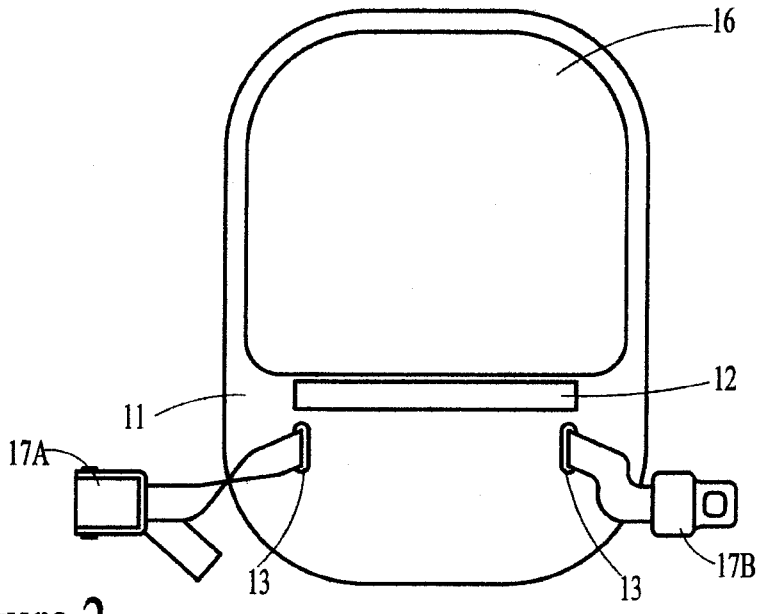

Figure 2

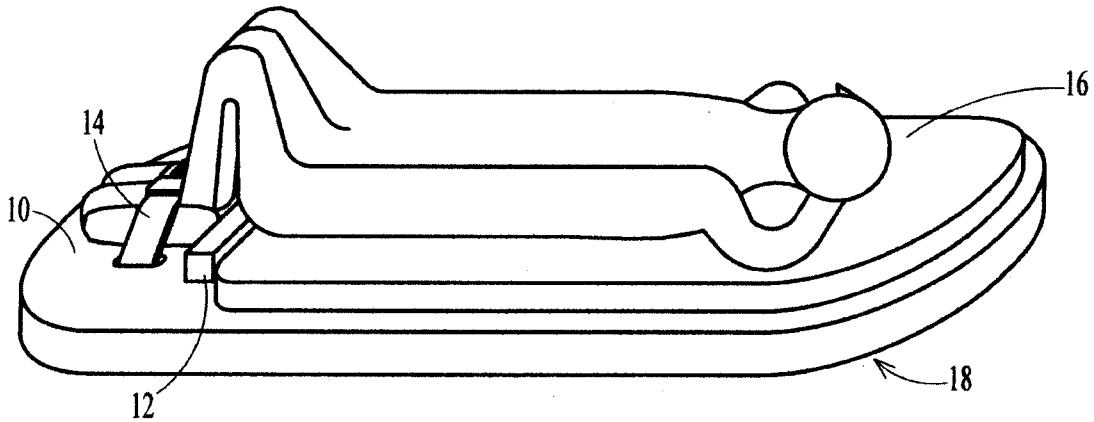

Figure 3

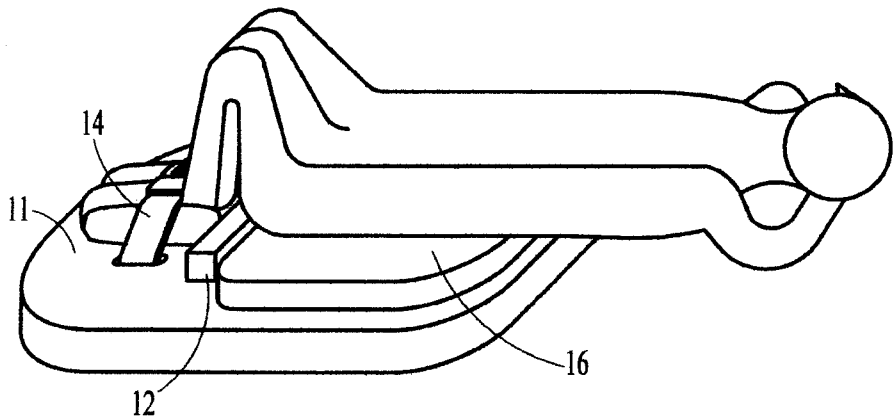

Figure 4

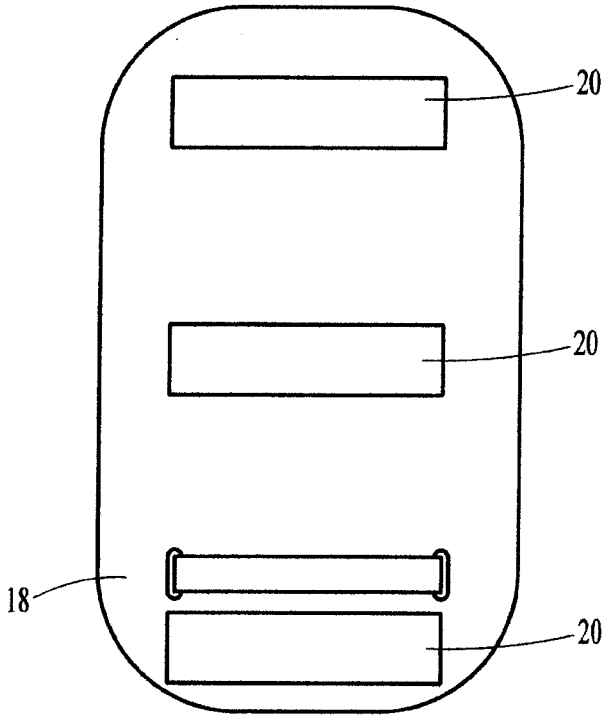

Figure 5A

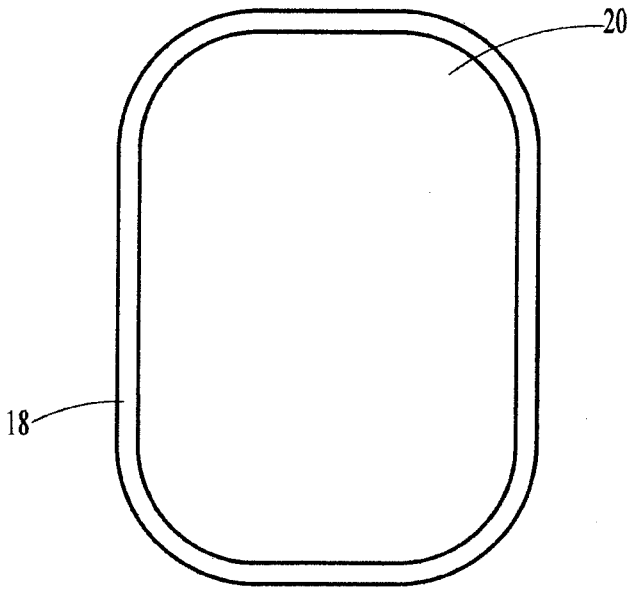

Figure 5B

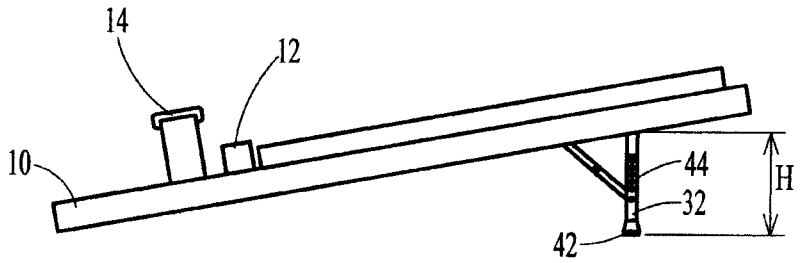

Figure 6A

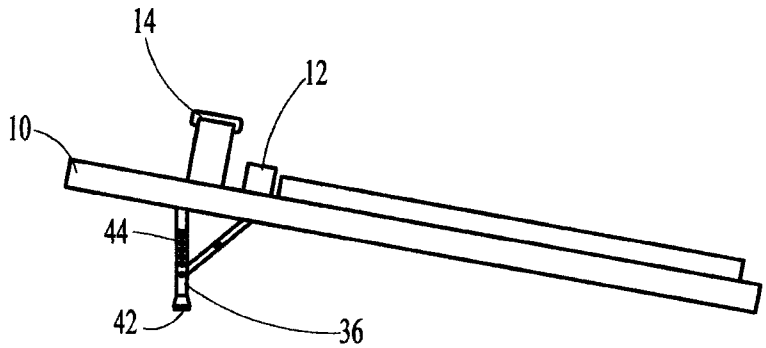

Figure 6B

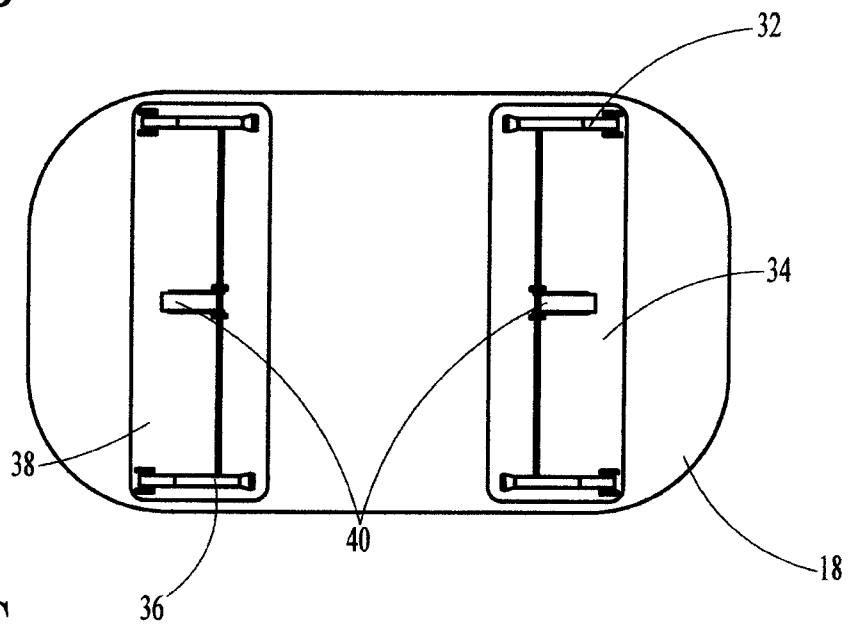

Figure 6C

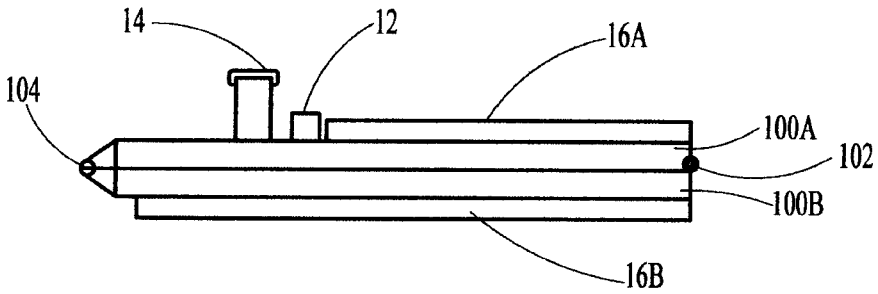

Figure 7A

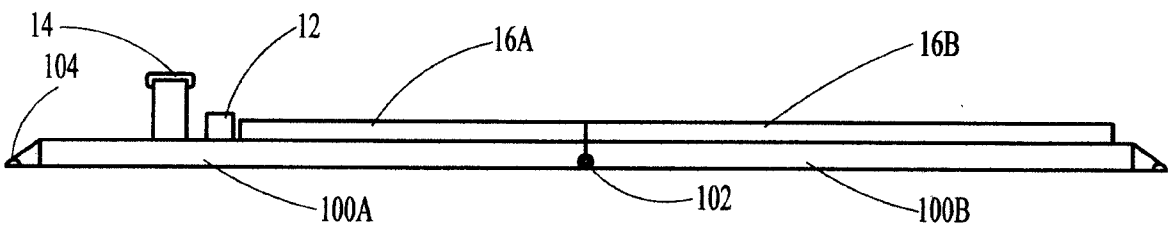

Figure 7B

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US 19/40771

A. CLASSIFICATION OF SUBJECT MATTER

IPC(8) - A63B 21/00, A63B 23/00, A63B 23/02, A63B 21/06, A63B 21/055 (2019.01)
CPC - A63B 21/00, A63B 21/002, A63B 23/00, A63B 23/02, A63B 23/035, A63B 69/00, A63B 71/02, A63B 23/0211, A63B 2069/0062, A63B 2208/0238, A63B 2210/50, A63B 21/4011, A63B 21/4037, A63B 23/0227, A63B 21/06, A63B 21/0615, A63B 21/08, A63B 21/4031, A63B 21/4047, A63B 21/055

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)

See Search History Document

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

See Search History Document

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

See Search History Document

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X --- Y	US 2007/0066463 A1 (Araujo) 22 March 2007 (22.03.2007), entire document, especially Fig. 1a, 1b, 1c, 1d, 2; para[0003]; para[0025]; para[0010];	1-4, 8, 12, 14-15 --- 5-7, 11, 16, 18, 20
X --- Y	US 2010/0323862 A1 (Sohn) 23 December 2010 (23.12.2010), entire document, especially Fig. 1, 2, 3; para[0035]; para[0036]; para[0047]; para[0038]; para[0040];	1-3, 5, 14-15 --- 10, 17
X	US 5,722,923 A (Lui) 03 March 1998 (03.03.1998), entire document, especially Fig. 1, 2, 3, 4, 7, 8, 10; col 3, ln 27-32; col 4, ln 16-35; col 3, ln 33-38; col 6, ln 40-46; col 3, ln 44-52;	1, 9, 12-14, 19
Y	US 2004/0014570 A1 (Centopani) 22 January 2004 (22.01.2004), entire document, especially Fig. 1; para[0030]; para[0033];	5-7, 16
Y	AU 2005100971 A4 (Murphy) 05 January 2006 (05.01.2006), entire document, especially Fig. 1, 2; Abstract;	10, 17
Y	US 2005/0148449 A1 (Weir et al.) 07 July 2005 (07.07.2005), entire document, especially Fig. 1, 3, 11, 12; para[0061]; para[0008]; para[0063]; para[0071]-[0072];	11, 18, 20
A	US 2008/0058165 A1 (Schletti) 06 March 2008 (06.03.2008), entire document	1-20
A	US 2012/0316042 A1 (Carlson) 13 December 2012 (13.12.2012), entire document	1-20
A	US 2010/0125027 A1 (Abiemo) 20 May 2010 (20.05.2010), entire document	1-20

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

* Special categories of cited documents:
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Date of the actual completion of the international search	Date of mailing of the international search report
28 August 2019	27 SEP 2019

Name and mailing address of the ISA/US	Authorized officer:
Mail Stop PCT, Attn: ISA/US, Commissioner for Patents P.O. Box 1450, Alexandria, Virginia 22313-1450 Facsimile No. 571-273-8300	Lee W. Young PCT Helpdesk: 571-272-4300 PCT OSP: 571-272-7774

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US 19/40771

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 4,489,936 A (Dal Monte) 25 December 1984 (25.12.1984), entire document	1-20
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