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(54) Title: CHAMELEON SOLE ADAPTIVE INSERTS

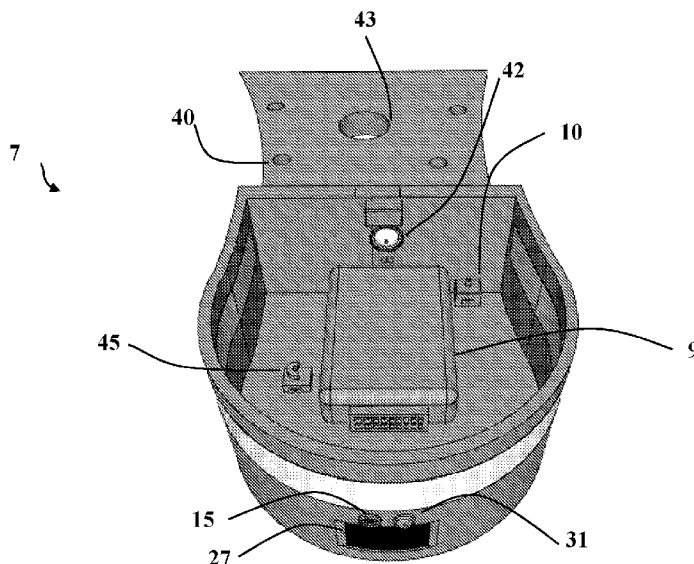


FIG. 2

(57) Abstract: A footwear sole apparatus which has at least one insert (principal insert and/or heel insert) wherein said insert(s) can be attached to a shoe, that is comprised of a configuration to fit or replace the sole or partial sole of a pair or pairs of footwear.



Chameleon Sole Adaptive Inserts

CROSS-REFERENCE TO RELATED APPLICATIONS.

This application claims priority to and the benefit of U.S. Application No. 17/986,927, filed on November 15, 2022, entitled “Chameleon Sole Adaptive Inserts,” the entire contents of which are hereby incorporated by reference and relied upon.

BACKGROUND

1. Field of the Invention

The present invention relates generally to footwear and more specifically it relates to a novel footwear sole apparatus that allows the wearer to interchange different soles or sole parts using the same pair of footwear thus changing footwear sole functionality and increasing the versatility, longevity, safety, comfort and potential health benefits of a single pair or multiple pairs of shoes depending on the consumer's needs.

2. Description of the Related Art

Any discussion of the prior art throughout the specification should in no way be considered as an admission that such prior art is widely known or forms part of common general knowledge in the field.

Footwear has been in use for years. It was created to provide protection and comfort to the human foot. The sole is the bottommost part of the shoe or footwear. Typically, consumers purchase new footwear once their current footwear soles wear out, for safety, comfort and/or aesthetic reasons. Consumers also purchase different pairs of shoes based upon the specific type of sole that each pair distinctly offers such as spiked soled shoes for golf or track running, cleat soled shoes for soccer or football, traction-enhanced soles for trail running, corrective soled shoes to address foot related conditions, etc.

Current footwear soles are not suitable because they are not customizable. Per the examples in the previous paragraph, consumers must purchase multiple pairs of shoes to participate in diverse activities. Once the sole on a favorite pair of shoes wears out, it is typically thrown away even though the upper might still be in good condition and despite the fact that the shoe might otherwise be of great comfort and/or sentimental value to the consumer.

A prior art example upon which this current concept builds is that of sole savers, also known as sole protectors, sole guards, toe taps, or sole grips. These generally constitute protective pads that are attached to the bottom of a shoe by a cobbler or shoe owner, designed to increase the longevity of usefulness of the shoe soles, preserve aesthetic appearance over time, and prevent slipping during wear. The limitations of this art are the fact that adding a new piece onto the existing shoe makes the shoe heavier and stiffer, thus reducing comfort when compared to the original. The same disadvantage applies when having a cobbler entirely resole a shoe; the original feel and fit of the shoe is inevitably altered. With sole savers, there is no option to completely replace the shoe sole, so a shoe owner cannot currently convert a shoe bottom from, for example, a jogging sole to a hiking boot sole, thus hampering its versatility and forcing the shoe owner to continue buying new pairs to serve diverse purposes.

With the Chameleon Sole Adaptive Inserts, one pair of shoes can now serve numerous functions instead of a consumer having to buy multiple pairs of footwear. With just one pair of shoes, the consumer can change the entire sole or parts of the sole to accommodate his/her needs or preferences. Just as a chameleon can change color to reflect its mood, help adjust to different temperatures, or to blend into its environment, so too can the Chameleon Sole Adaptive Inserts be changed to reflect the preferences and needs of the consumer.

The Chameleon Sole Adaptive Inserts provide a wide variety of options to consumers including but not limited to the following applications: alert users to problems with their anatomy or external dangers such as excess carbon monoxide or soil contaminants; charge communication devices and other devices; enable air pump inflation and deflation; vibrate to improve circulation and provide other benefits to feet and legs; serve as an alert beacon; provide warmth to feet; provide battery power to all portions of footwear; enable color changing and special light effects such as twinkling.

In these respects, the Chameleon Sole Adaptive Inserts according to the present invention substantially depart from the conventional concepts and designs of the prior art, and in so doing provide an apparatus primarily developed for the purpose of changing footwear sole functionality and increasing the versatility, longevity, safety, comfort and potential health benefits of a single pair or multiple pairs of footwear.

BRIEF SUMMARY

In view of the foregoing disadvantages inherent in the known types of footwear, sole savers and shoe soles now present in the prior art, the present invention provides a new footwear sole apparatus wherein the same can be utilized for improving footwear sole functionality and increasing the versatility, longevity, safety, comfort and potential health benefits of footwear. The general purpose of the present invention, which will be described subsequently in greater detail, is to provide a new footwear sole apparatus that has many of the advantages of the shoe sole mentioned heretofore and many novel features that result in a new footwear sole apparatus which is not anticipated, rendered obvious, suggested, or even implied by any of the prior art footwear utility patents, either alone or in any combination thereof.

To attain this, the present invention generally comprises at least one insert (principal insert and/or heel insert) wherein said insert(s) can be attached to a shoe such as a Chameleon Sole Footwear Apparatus, that is comprised of a configuration to fit or replace the sole or partial sole of a pair or pairs of footwear.

There has thus been outlined, rather broadly, the more important features of the invention in order that the detailed description thereof may be better understood, and in order that the present contribution to the art may be better appreciated. There are additional features of the invention that will be described hereinafter and that will form the subject matter of the claims appended hereto.

In this respect, before explaining at least one embodiment of the invention in detail, it is to be understood that the invention is not limited in its application to the details of construction and to the arrangements of the components set forth in the following description or illustrated in the drawings. The invention is capable of other embodiments and of being practiced and carried out in various ways. Also, it is to be understood that the phraseology and terminology employed herein are for the purpose of the description and should not be regarded as limiting.

A primary object of the present invention is to provide a footwear sole apparatus that will overcome the shortcomings of the prior art shoe soles and sole savers, changing footwear sole functionality.

A second object is to provide an improvement to the versatility of footwear.

A further object is to provide an improvement to the longevity of footwear.

Another object is to improve the safety benefits conferred by footwear.

Another object is to provide a footwear apparatus that improves the duration of consumer comfort with a preferred pair or pairs of shoes.

An additional object is to enable footwear to provide potential health benefits to consumers.

A further object is to maintain the aesthetic appearance of a pair or pairs of shoes over time.

An additional object of the present invention is to provide a footwear apparatus that meets the needs of consumers with orthopedic issues or disabilities.

Another object is to provide a footwear apparatus that supports waste reduction and consumer environmental stewardship when compared to the prior art as, according to the U.S. Department of the Interior, Americans throw away over 300 million pairs of shoes annually.

Other objects and advantages of the present invention will become obvious to the reader and it is intended that these objects and advantages are within the scope of the present invention.

To the accomplishment of the above and related objects, this invention may be embodied in the form illustrated in the accompanying drawings, attention being called to the fact, however, that the drawings are illustrative only, and that changes may be made in the specific construction illustrated and described within the scope of the appended claims.

BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWING(S).

Various other objects, features and attendant advantages of the present invention will become fully appreciated as the same becomes better understood when considered in conjunction with the accompanying drawings.

Like reference characters designate the same or similar parts throughout the several views, wherein:

FIG. 1 is a front facing top view of the present invention.

FIG. 2 is a top view, with transparent top, of the interior of the present invention.

FIG. 3 is a back view, illustrating insertion into the back of a shoe, of the present invention.

FIG. 4 is a back view, with transparent top, illustrating insertion into the back of a shoe, of the present invention.

FIG. 5 is a bottom view of the present invention.

FIG. 6 is a top view, with transparent top, of the interior of the present invention, displaying the optional heat coil feature of the invention.

FIG. 7 is a front view, illustrating insertion into the front of a shoe, of the present invention.

DETAILED DESCRIPTION

A. Overview

Turning now descriptively to the drawings, in which similar reference characters denote similar elements throughout the several views, FIGS. 1 through 7 illustrate Chameleon Sole Adaptive Inserts 7, which comprise a principal insert 11 and/or heel insert 17 wherein said insert(s) 11,17 can be attached to a shoe.

B. Heel Insert

The heel insert 17, if present, is preferably comprised of a footwear sole heel shaped configuration, as illustrated in FIG. 1, to allow it to interconnect with the back portion of the shoe and/or principal insert 11.

The heel insert 17 constitutes a central opening 43, possibly included subsidiary holes 40, an interior light 42, an air pump 10, a battery 9, a motor 45, a display screen 27, a sensor 15, an optional heating coil 47, an exterior light 31, an intake and release valve 5 and a charging port 23.

The central opening 43 extends through the heel insert 17 and is positioned in a substantially longitudinal and latitudinal center of the portion of the heel insert 17, such that the subsidiary holes 40, if present, are equally distributed longitudinally to either side of the central opening.

The central opening **43** is preferably comprised of a substantially circular configuration as illustrated in FIG. 1; however the central opening **43** may be comprised of various other configurations, such as but not limited to rectangular and elliptical.

The intake and release valve **5** connects to the air pump **10** and enables intake and/or release functionality depending on the insert(s) configuration.

The display screen **27** exhibits information derived from sources including but not limited to environmental inputs from within and without the insert(s), such as sensor readings.

The motor **45** is used to generate notifications of the insert(s) internal and external status, creating alerts and providing other information to the consumer.

The optional heating coil **47** is used to provide heat to the shoe and parts of the shoe.

C. Principal Insert

The principal insert **11**, if present, is preferably comprised of a footwear sole shaped configuration, as illustrated in FIG. 1, to allow it to interconnect with the shoe.

The principal insert **11** is identical in interior and exterior components to the heel insert **17**. The difference is in its orientation to slide into the front of footwear, as illustrated in FIG. 7.

E. In Use

In use, the user slides the principal insert **11** onto the shoe equipped with a receptive base member, such as the Chameleon Sole Footwear Apparatus. Finally, the user pushes the heel insert **17** from the back side to fit it into the principal insert **11** or directly into the shoe.

One of the many possible variations within the scope of the present invention is for a user to select a partial, as opposed to complete, sole replacement, which would potentially minimize the need to employ both of the aforementioned inserts.

Another possible variation within the scope of the present invention is for a person to use the Chameleon Sole footwear apparatus on an existing pair of shoes, detaching the existing sole and attaching a base member using a method included but not limited to adhesive or stitching, and one or more inserts **11,17**.

What has been described and illustrated herein is a preferred embodiment of the invention along with some of its variations. The terms, descriptions and figures used herein are set forth by

way of illustration only and are not meant as limitations. Those skilled in the art will recognize that many variations are possible within the spirit and scope of the invention, which is intended to be defined by the following claims (and their equivalents) in which all terms are meant in their broadest reasonable sense unless otherwise indicated. Any headings utilized within the description are for convenience only and have no legal or limiting effect.

Aspect 1. A footwear sole apparatus, comprising: inserts, which include: rail inserts; an intake and release valve; a charging port; a display screen; a sensor and an exterior light; an interior light; an optional heating coil; an air pump; a battery; and a motor.

Aspect 2. The footwear sole apparatus of Aspect 1, wherein the insert is a principal insert and the apparatus further comprising a heel insert.

Aspect 3. The footwear sole apparatus of Aspect 2, further comprising an air pump.

Aspect 4. The footwear sole apparatus of Aspect 2, further comprising a display screen that exhibits information derived from external and internal sources and receives input from various sources such as the sensor.

Aspect 5. The footwear sole apparatus of Aspect 2, further comprising a motor.

Aspect 6. The footwear sole apparatus of Aspect 2, wherein the principal insert includes a central opening that is configured to securely receive the stud(s) of the shoe base member; the principal insert includes a plurality of subsidiary holes; the heel insert includes a central opening that is configured to securely receive the stud of the shoe base member; the heel insert includes a plurality of subsidiary holes.

CLAIMS

I claim:

Claim 1. A footwear sole apparatus, comprising:

Inserts, which include: a second rail extending continuously from the toe portion through the midfoot portion (or from the heel portion to the midfoot portion in the case of the heel insert) that includes a groove along an outer edge of the second rail, the second rail of the insert is configured to slide into an existing shoe such that edge of the second rail contacts the groove of the shoe; and allows it to slide into the locking mechanism of the shoe's base member; the exterior of the inserts that include an intake and release valve, a charging port, a display screen, a sensor and an exterior light; the interior of the inserts that include an interior light, an optional heating coil, an air pump, a battery, and a motor.

Claim 2. The footwear sole apparatus of claim 1, wherein the insert is a principal insert and the apparatus further comprising a heel insert configured to overlap the heel portion of the base member.

Claim 3. The footwear sole apparatus of claim 2, further comprising an air pump configured to connect to the intake and release valve.

Claim 4. The footwear sole apparatus of claim 2, further comprising a display screen that exhibits information derived from external and internal sources and receives input from various sources such as the sensor.

Claim 5. The footwear sole apparatus of claim 2, further comprising a motor that powers information transmission.

Claim 6. The footwear sole apparatus of claim 2, wherein the principal insert includes a central opening that is configured to securely receive the stud(s) of the shoe base member.

Claim 7. The footwear sole apparatus of claim 2, wherein: the principal insert includes a plurality of subsidiary holes that is configured to fit the corresponding number of studs of the shoe base member.

Claim 8. The footwear sole apparatus of claim 2, wherein the heel insert includes a central opening that is configured to securely receive the stud of the shoe base member.

Claim 9. The footwear sole apparatus of claim 8, wherein: the heel insert includes a plurality of subsidiary holes.

Claim 10. A footwear system comprising:

a footwear including a bottom portion;

an insert, configured to attach to the bottom portion of the footwear; and

the insert includes: a second rail extending continuously from the toe portion through the midfoot portion that includes a groove along an outer edge of the second rail; and a circular opening configured to receive cylindrical stud(s) from the shoe.

Claim 11. The footwear system of claim 10, wherein the footwear includes an existing sole, the insert(s) being configured to replace the existing sole and to fit onto the wearable portion.

Claim 12. A footwear insert comprising:

a principal insert including a rail that defines a groove along an outer edge of the rail,

the principal insert including a toe portion and a midfoot portion,

wherein: the rail extends longitudinally along the toe portion and extends continuously from the toe portion through the midfoot portion, and the midfoot portion includes a circular opening configured to receive a cylindrical stud of the base member attached to the shoe.

Claim 13. The footwear insert of claim 12, further comprising a heel insert being configured to overlap the heel portion of the base member.

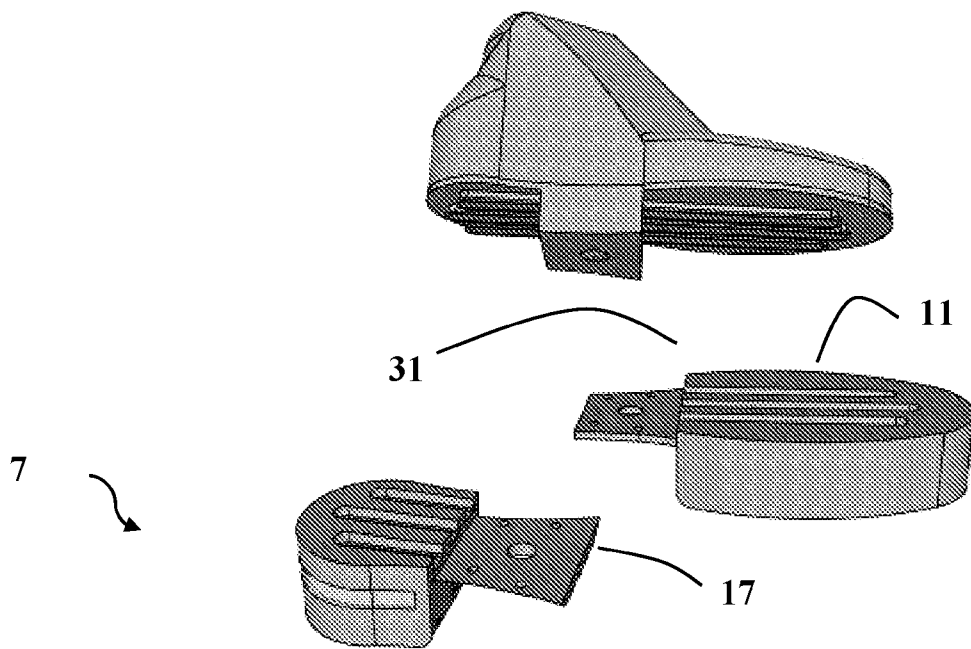


FIG. 1

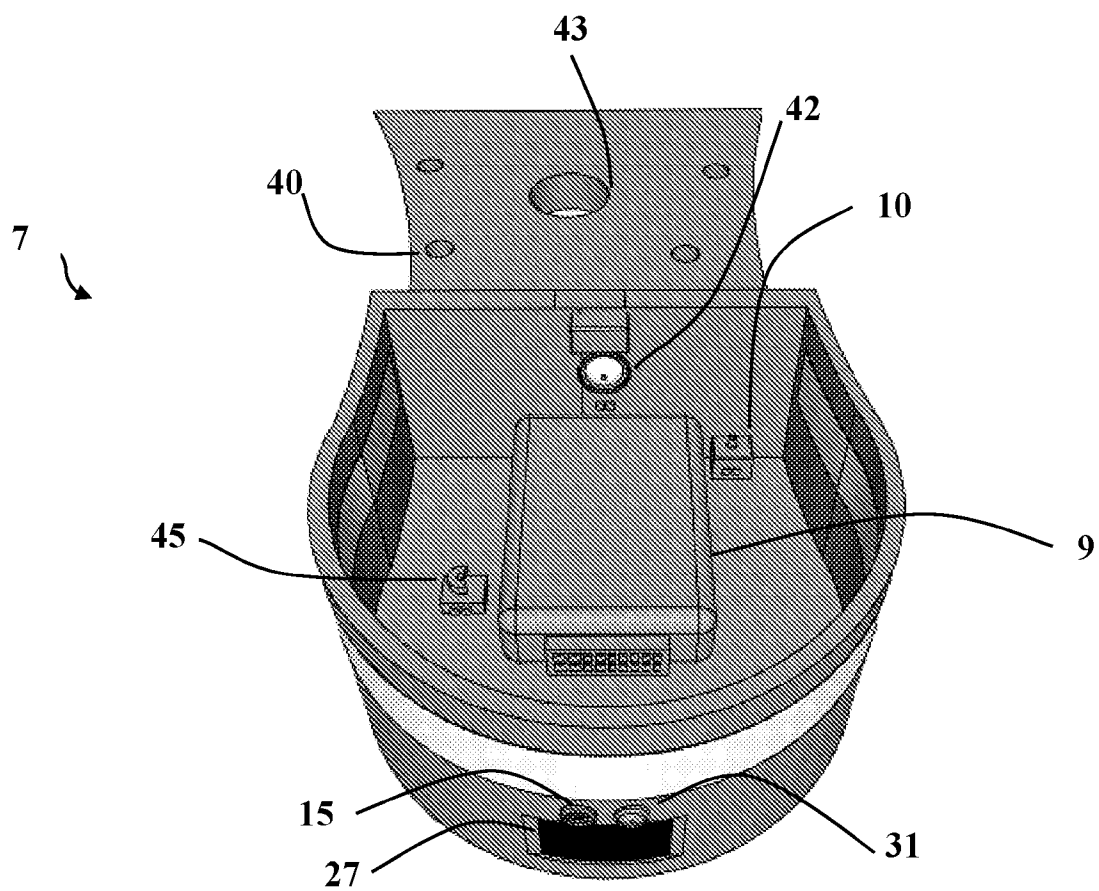


FIG. 2

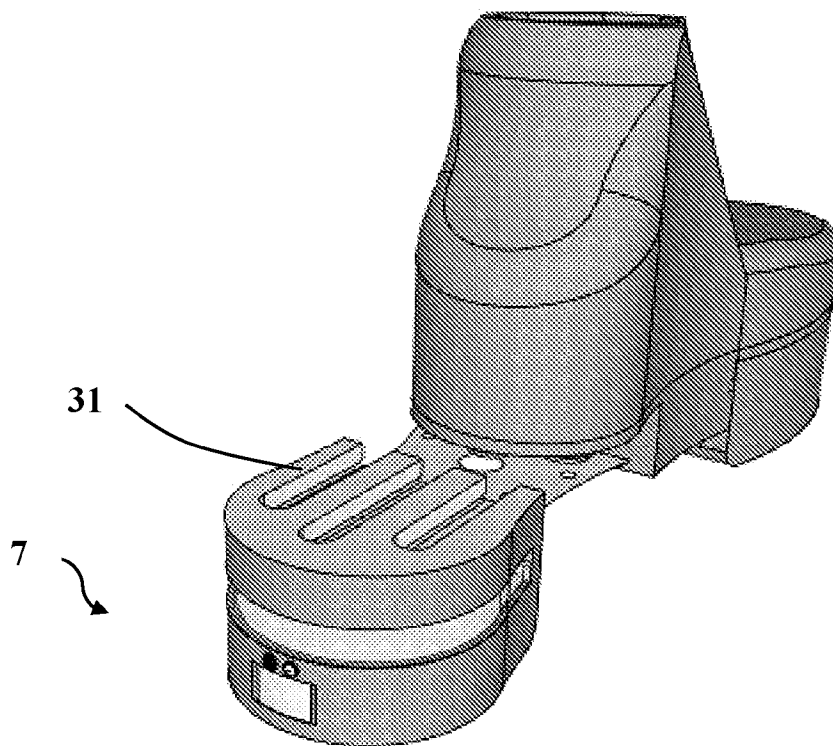


FIG. 3

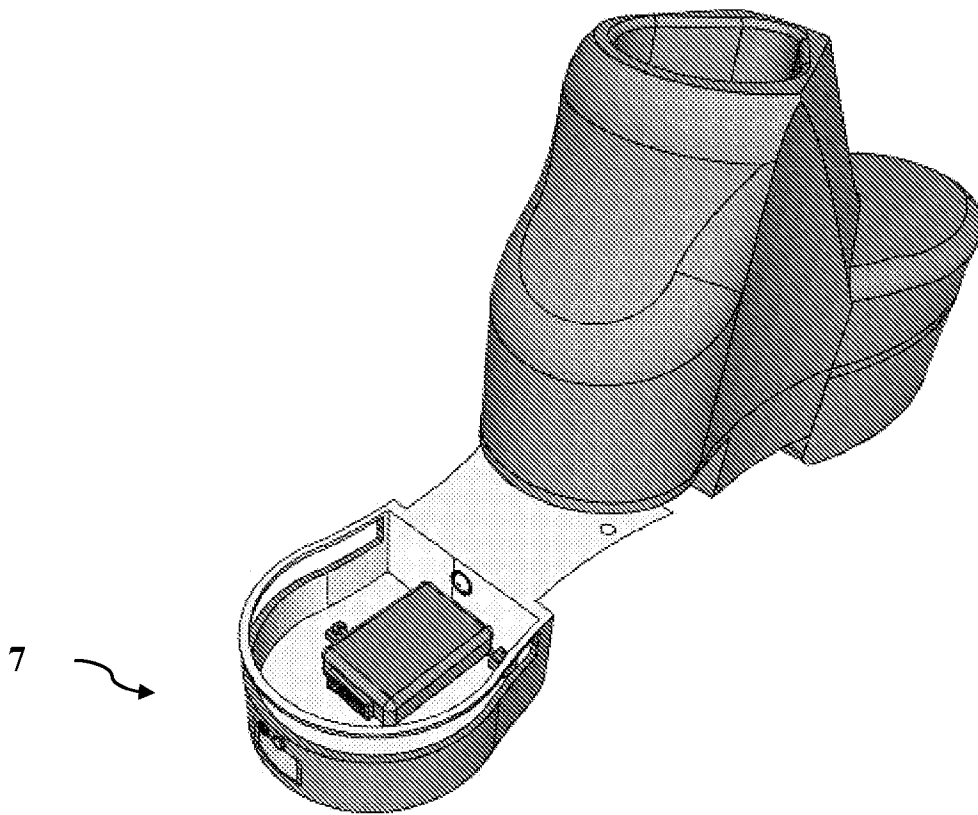


FIG. 4

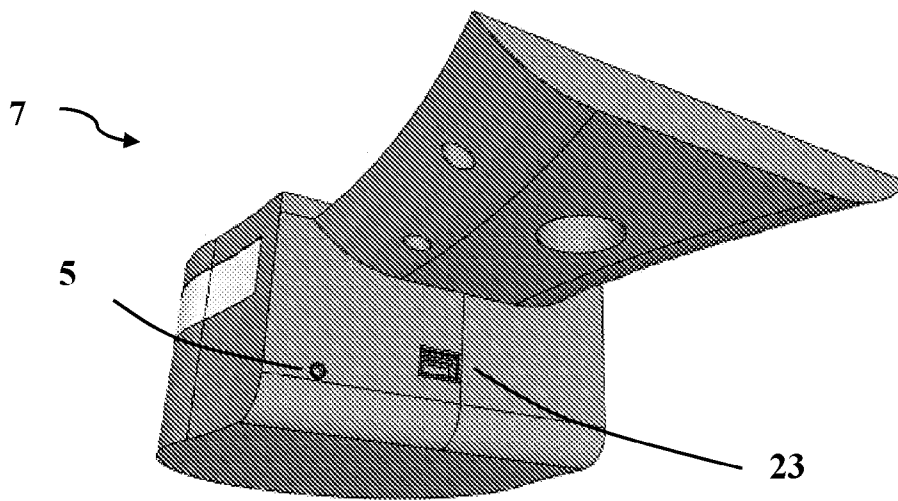


FIG. 5

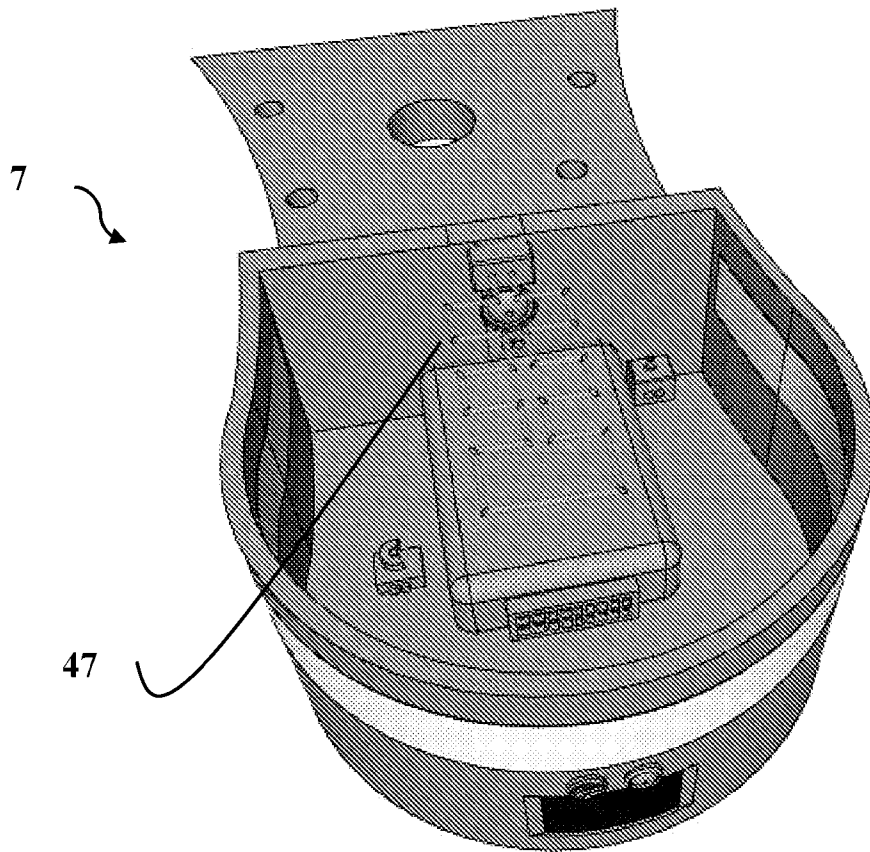


FIG. 6

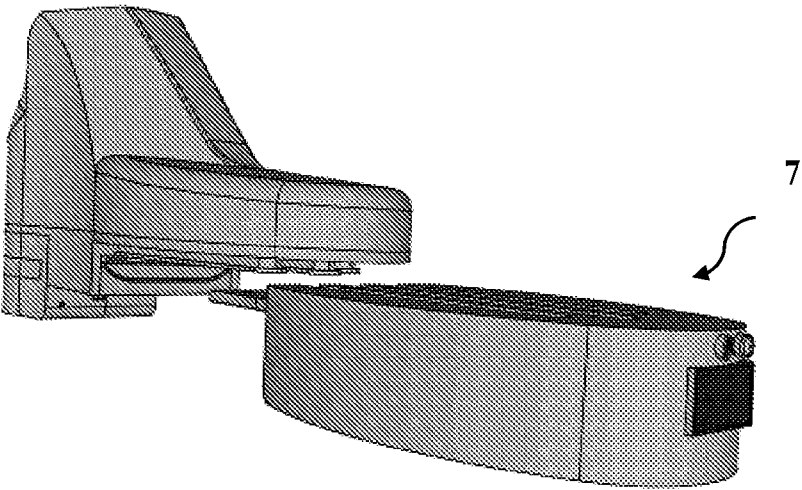


FIG. 7

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US 23/78114

A. CLASSIFICATION OF SUBJECT MATTER

IPC - INV. A43B 3/34, A43B 21/39, A43B 13/36 (2023.01)

ADD. A43B 13/16, A43B 13/37 (2023.01)

CPC - INV. A43B 3/34, A43B 13/28, A43B 21/39, A43B 13/36

ADD. A43B 13/16, A43B 3/244, A43B 3/246, A43B 13/37

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	US 11,432,612 B1 (Gomez) 06 September 2022 (06.09.2022), entire document, especially Fig. 1, 2, 3, 4; col 3, ln 61 to col 4, ln 4; col 4, ln 6-8; col 4, ln 9-15; col 4, ln 30-39; col 5, ln 2-12; col 4, ln 57-67;	10-13
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A		1-9
A	WO 1994/05177 A1 (BIOMECHANICS CORPORATION OF AMERICA) 17 March 1994 (17.03.1994), entire document, especially Fig. 1A, 1B, 1C, 1D, 2; page 9, paragraph 6; paragraph 3 to page 17, paragraph 1; page 18, paragraph 2; page 12, paragraph 2;	1-9
A	US 2015/0290074 A1 (Koenig) 15 October 2015 (15.10.2015), entire document, especially Fig. 1-6; para[0024]; para[0026]; para[0030]; para[0031]; para[0025];	1-9
A	WO 2019/111151 A1 (GEOX S.P.A.) 13 June 2019 (13.06.2019), entire document, especially Fig. 1-7; page 9, paragraph 11; page 9, paragraph 12 to page 10, paragraph 1; page 17, paragraph 5;	1-9
A	US 8,069,583 B1 (Simchuk) 06 December 2011 (06.12.2011), entire document	1-13
A	US 2017/0265563 A1 (SHENZHEN BREO TECHNOLOGY CO., LTD.) 21 September 2017 (21.09.2017), entire document	1-13

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

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Date of the actual completion of the international search

03 January 2024

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