US 20150165267A1

(19) **United States**

(12) **Patent Application Publication**

Erickson

(10) **Pub. No.: US 2015/0165267 A1**

(43) **Pub. Date: Jun. 18, 2015**

(54) **MUSCLE EXERCISE DEVICE**

(71) Applicant: **Dean Erickson**, Los Angeles, CA (US)

(72) Inventor: **Dean Erickson**, Los Angeles, CA (US)

(21) Appl. No.: **14/565,356**

(22) Filed: **Dec. 9, 2014**

Related U.S. Application Data

(60) Provisional application No. 61/916,219, filed on Dec. 15, 2013.

Publication Classification

(51) **Int. Cl.**

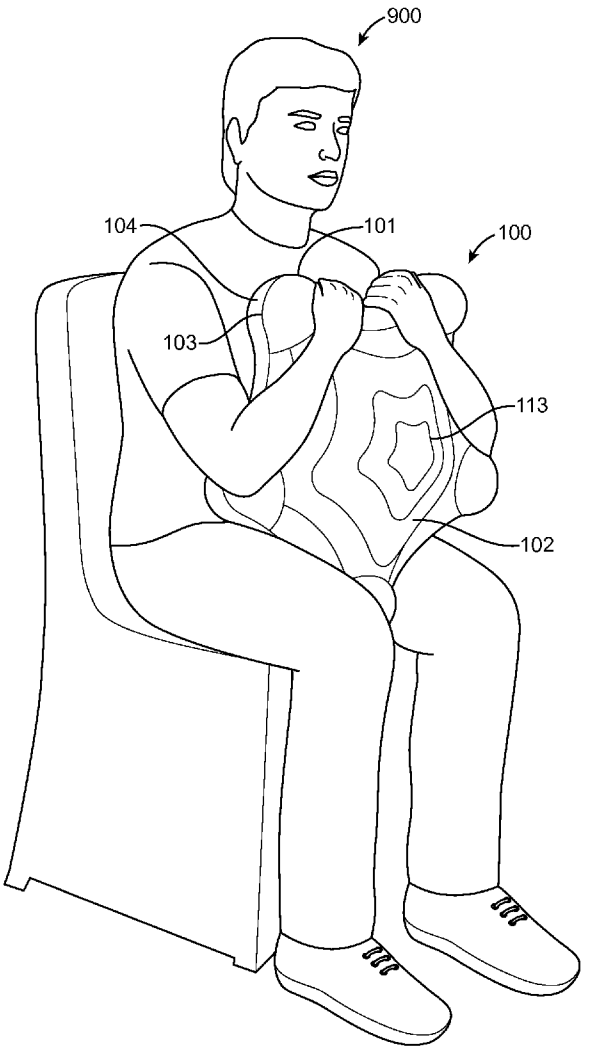
A63B 23/02	(2006.01)
A63B 21/02	(2006.01)

(52) **U.S. Cl.**

CPC ***A63B 23/0205*** (2013.01); ***A63B 21/02*** (2013.01)

(57) **ABSTRACT**

A portable muscle exercise device with no moving parts that may be used from a sitting, standing, reclined, supine, and/or prone position is described and disclosed. In some exemplary embodiments, the device may comprise a resilient member. The member may comprise an upper exterior surface and a lower exterior surface disposed opposite. The member may have a five pointed star shape. The resilient property may be derived from one or more of a material of construction of the member and/or a gas filled interior volume. The member may be configured to be engaged by a first location on the user's body. The member may be configured to be engaged by the second, different, location on the user's body. When the user may exert a compression force by squeezing the first location towards the second location, the user's muscles between the first location and the second location may be exercised.



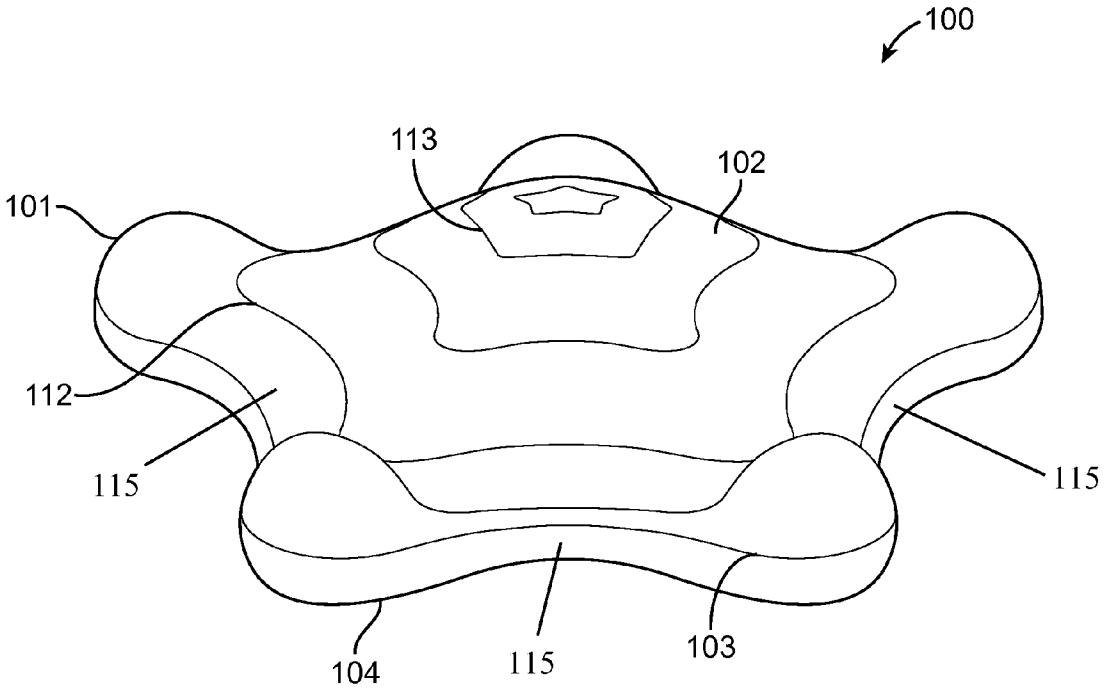


FIG. 1(a)

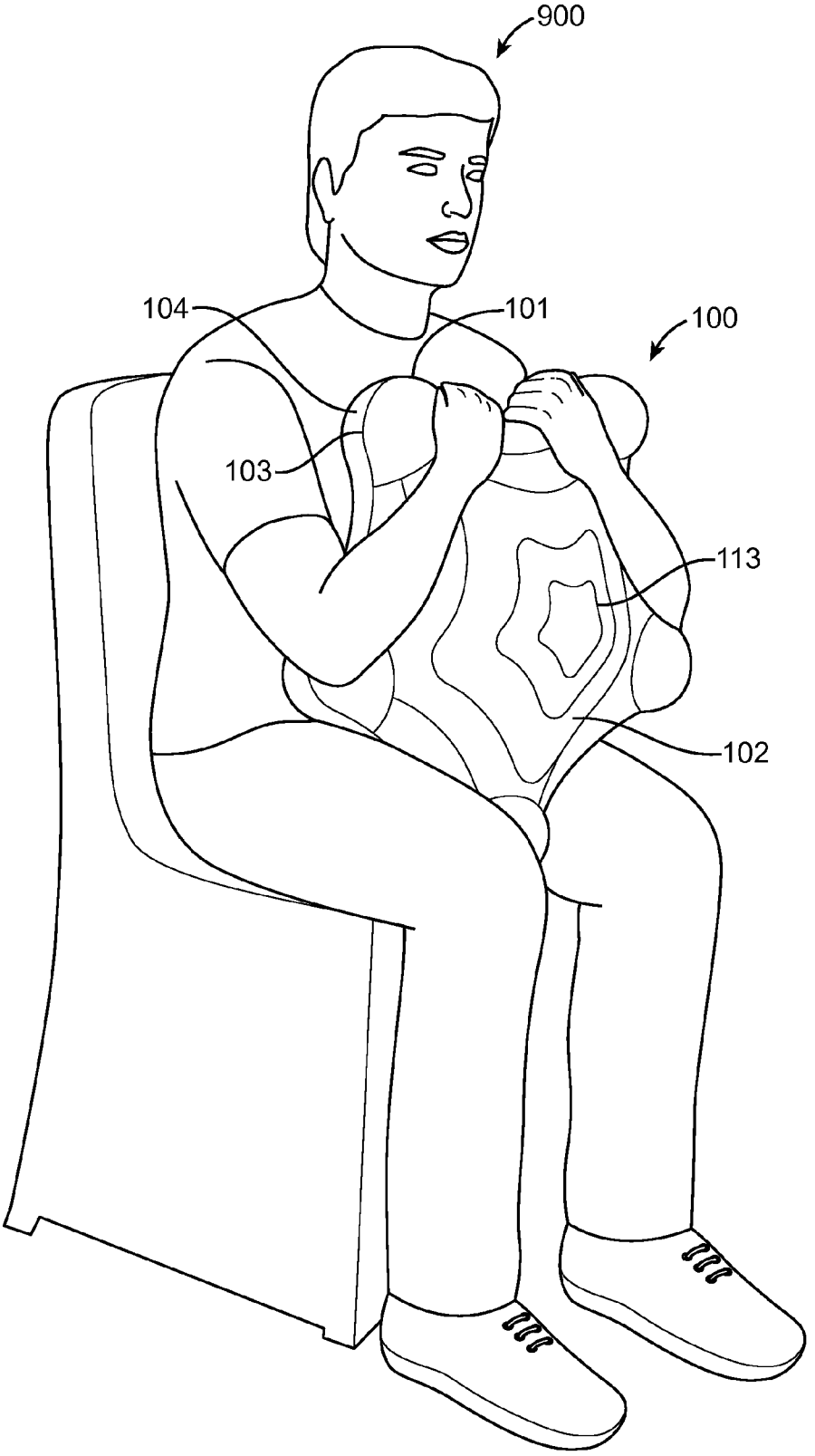


FIG. 1(b)

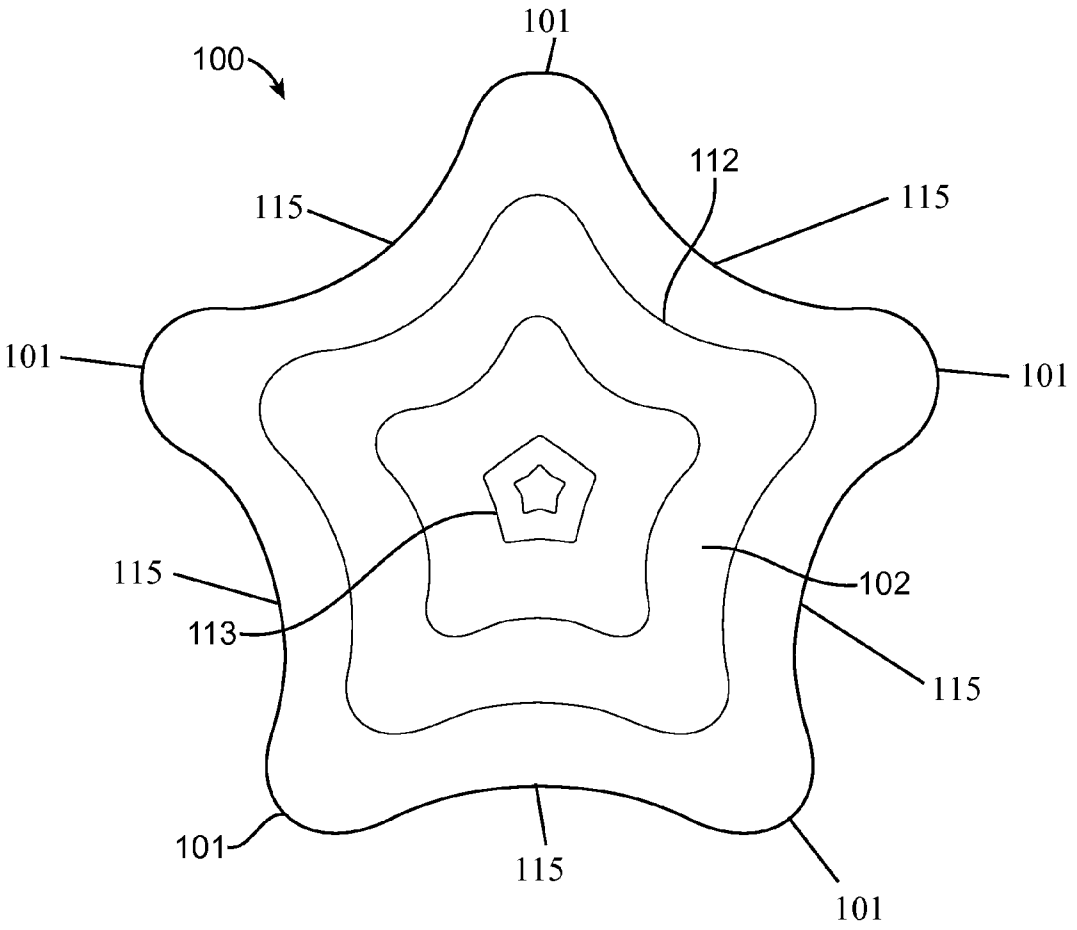

100
101
112
115
115
101
101
115
102
113
115
101
115
101

FIG. 2(a)

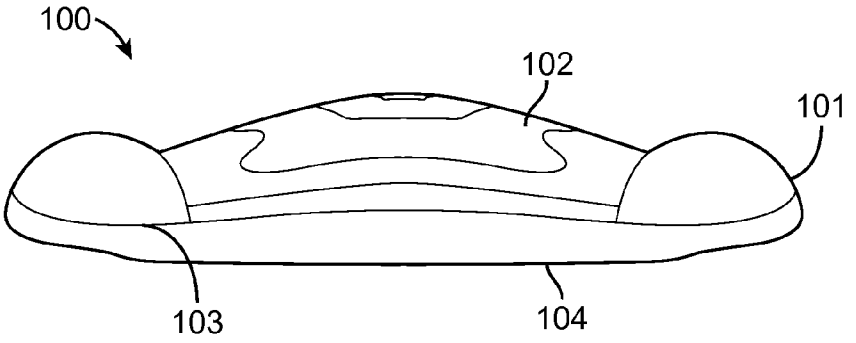

100
102
101
103
104

FIG. 2(b)

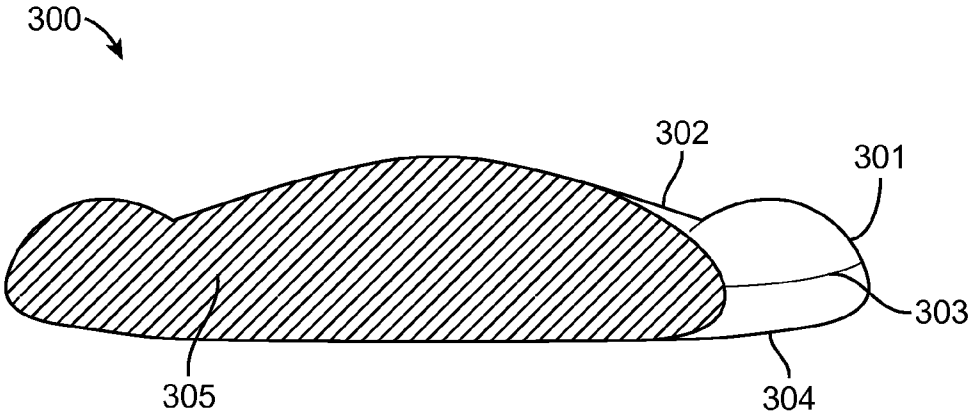

300
302
301
303
305
304

FIG. 3(a)

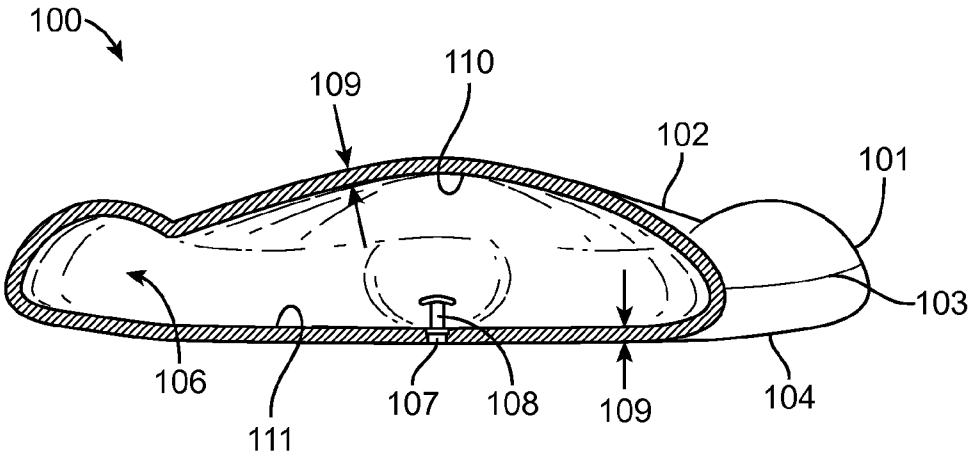

100
109
110
102
101
103
106
111
107
108
109
104

FIG. 3(b)

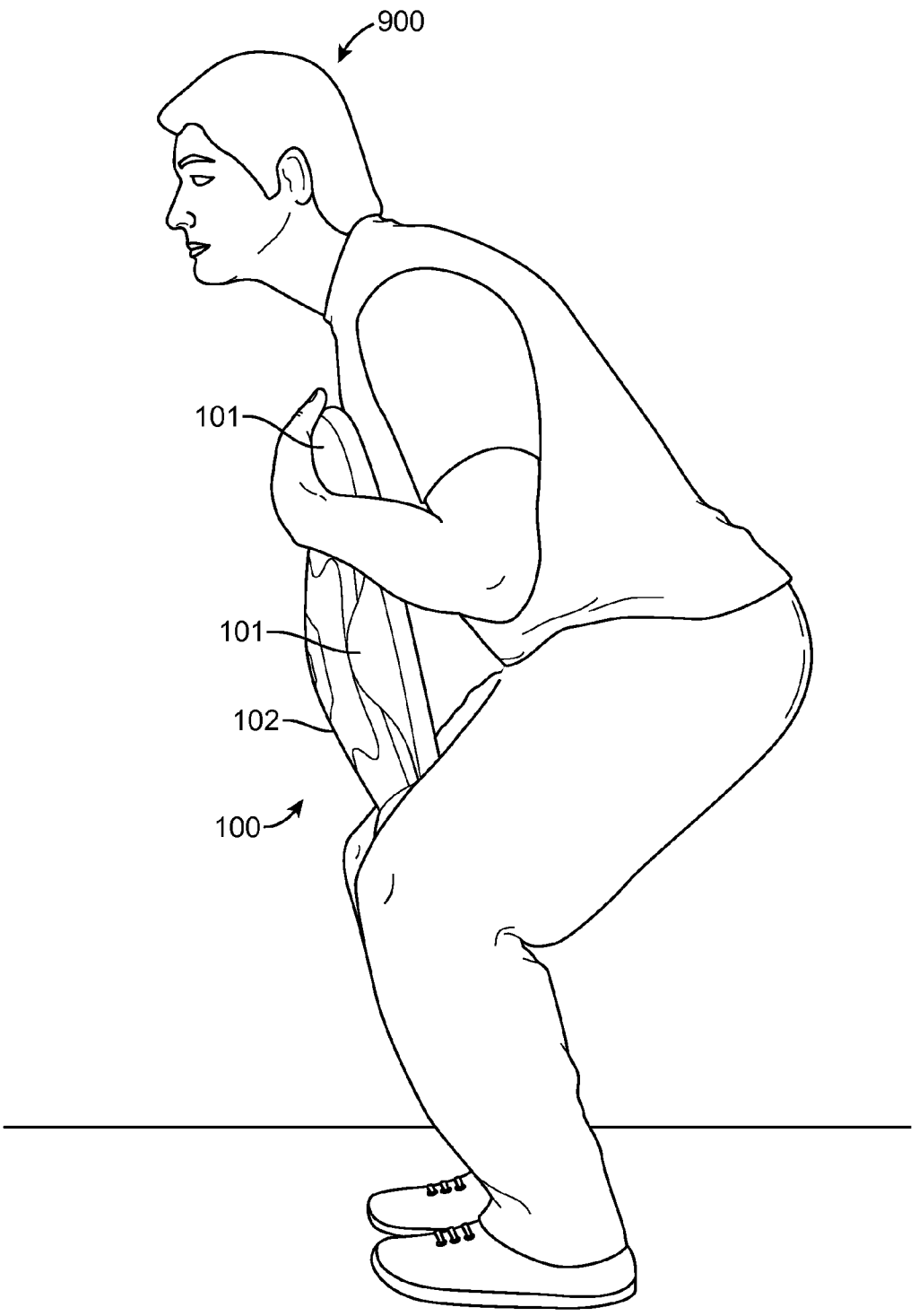


FIG. 4(a)

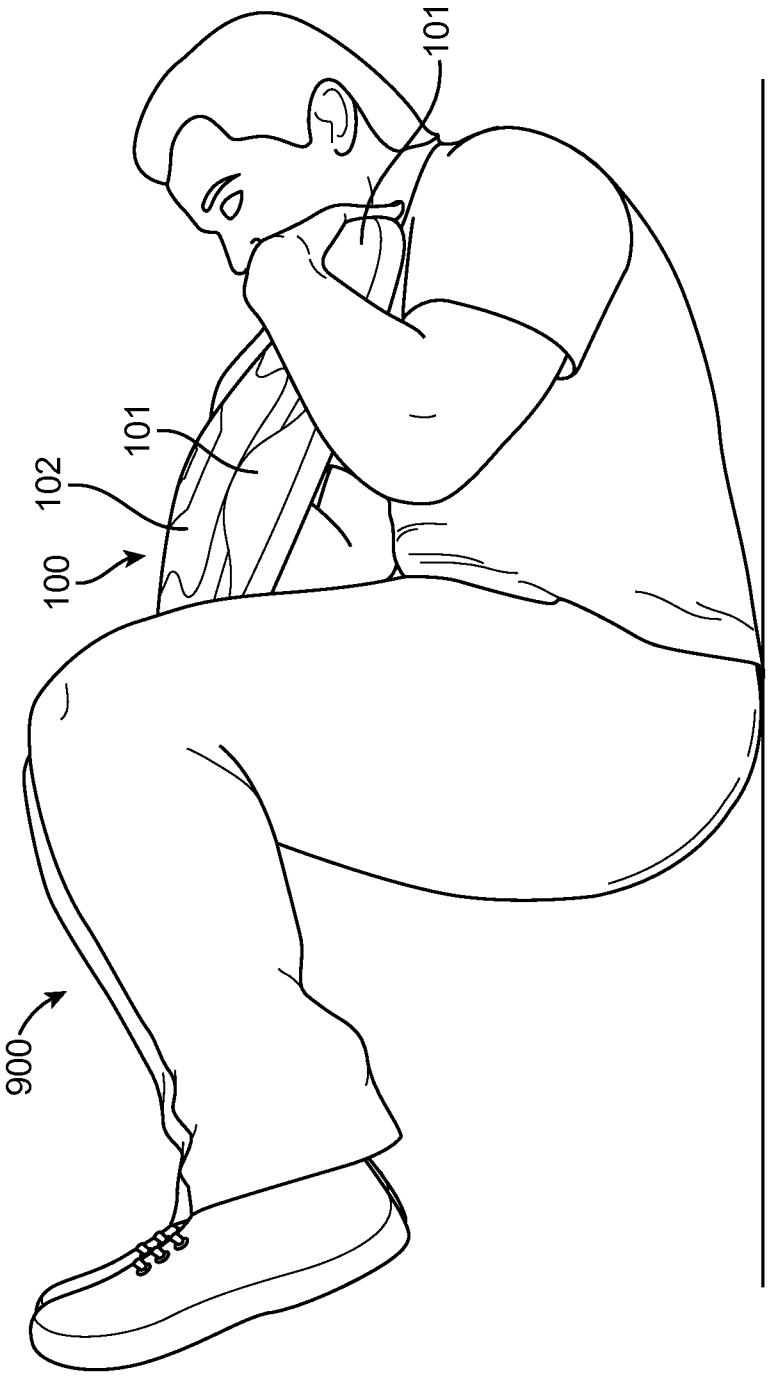


FIG. 4(b)

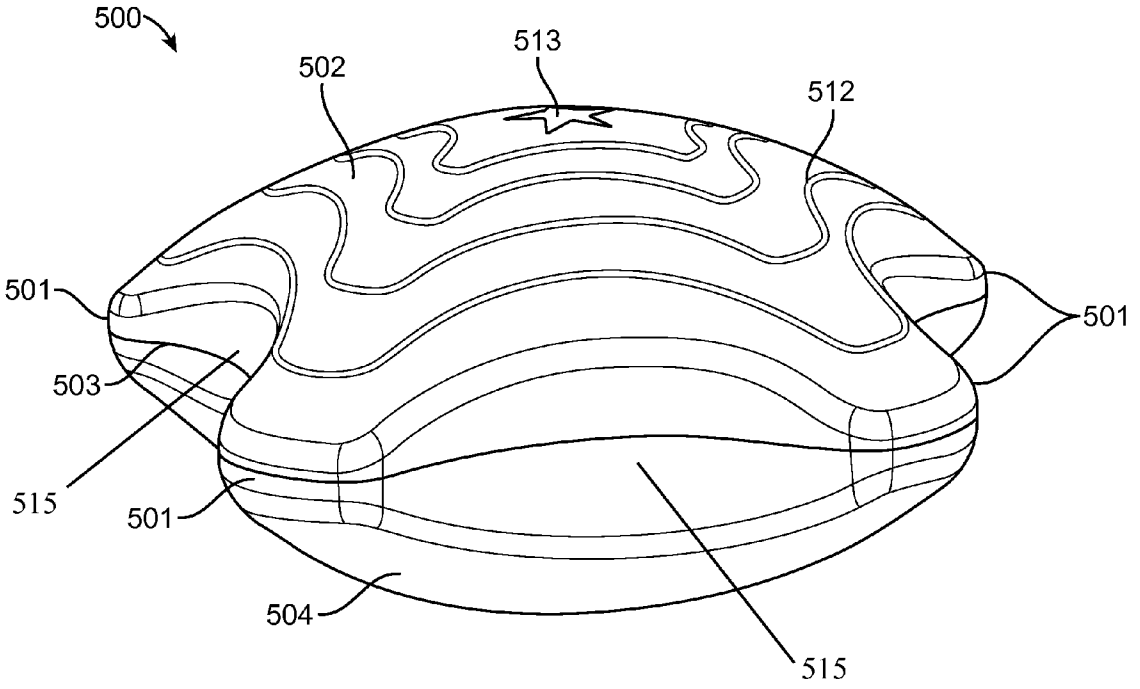


FIG. 5(a)

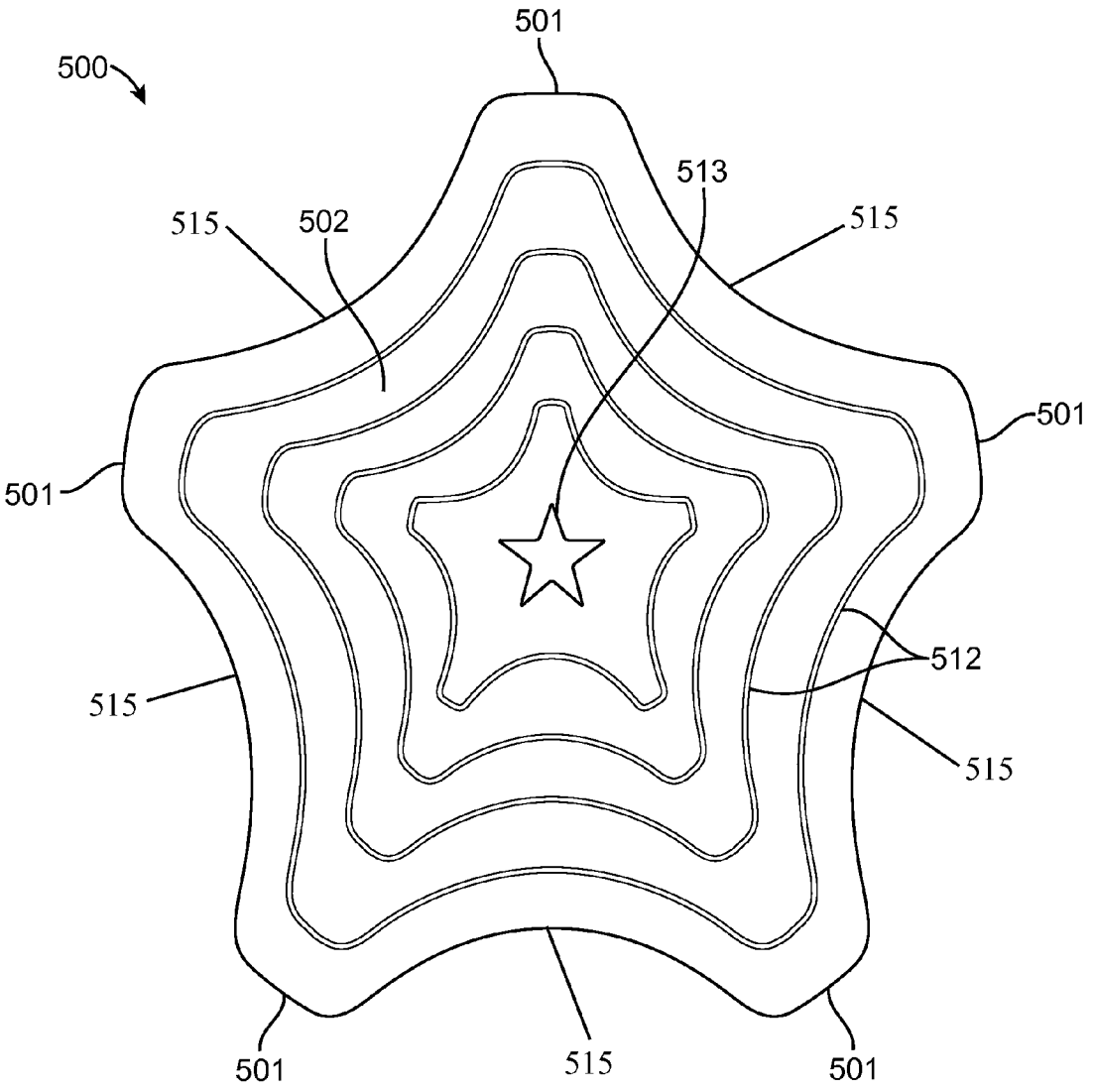


FIG. 5(b)

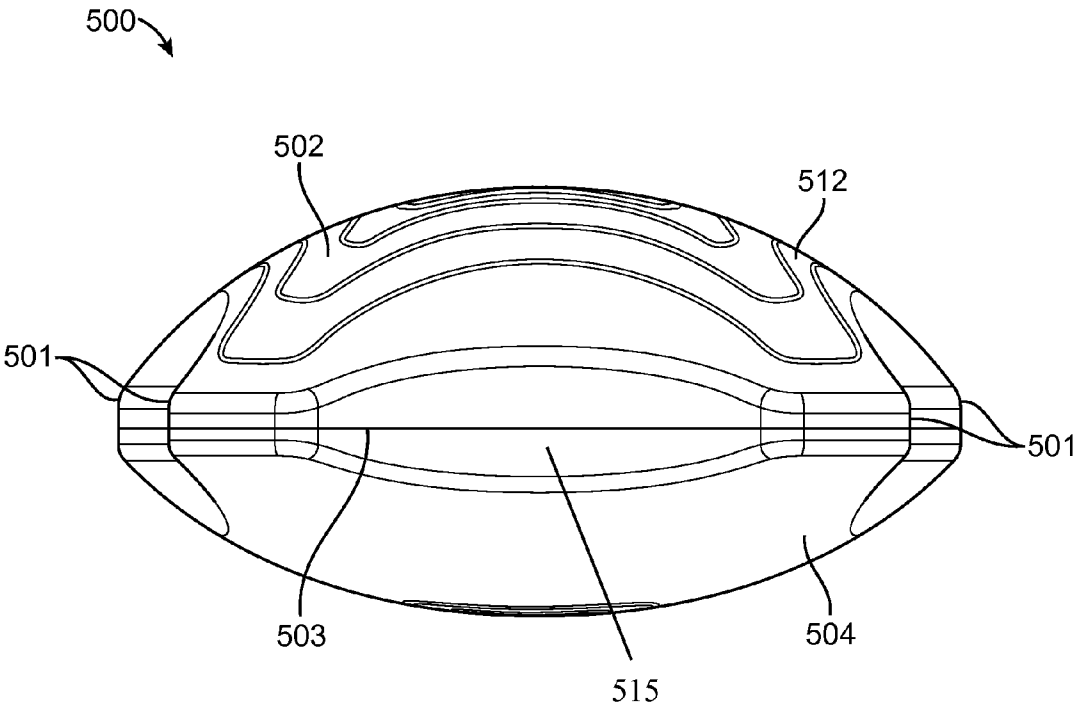


FIG. 5(c)

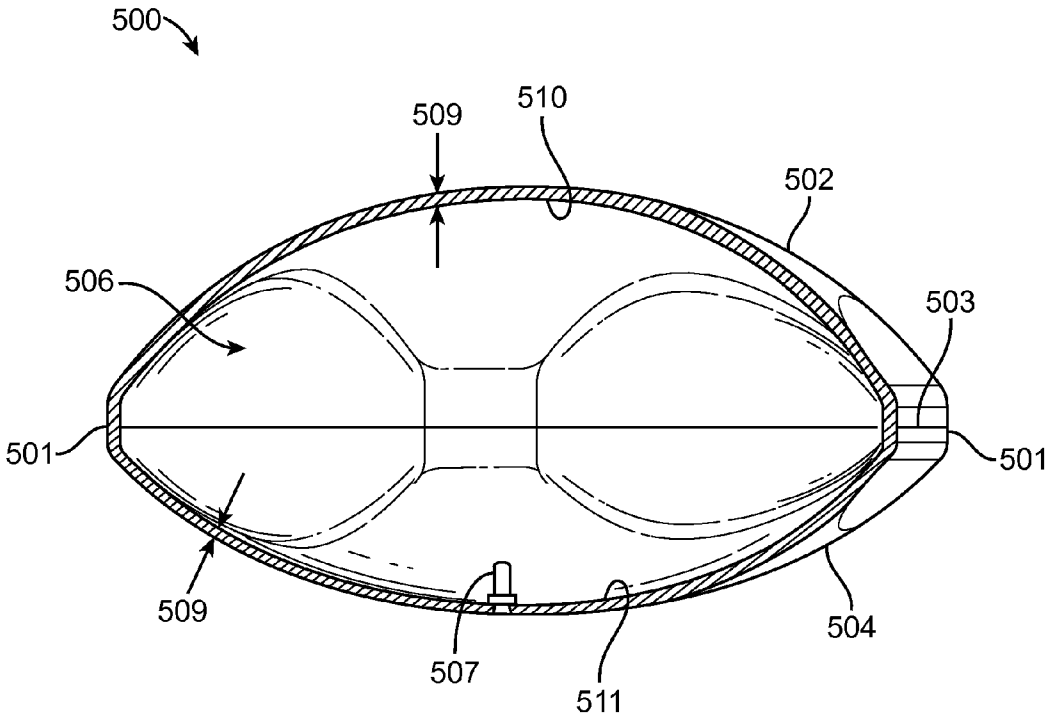


FIG. 5(d)

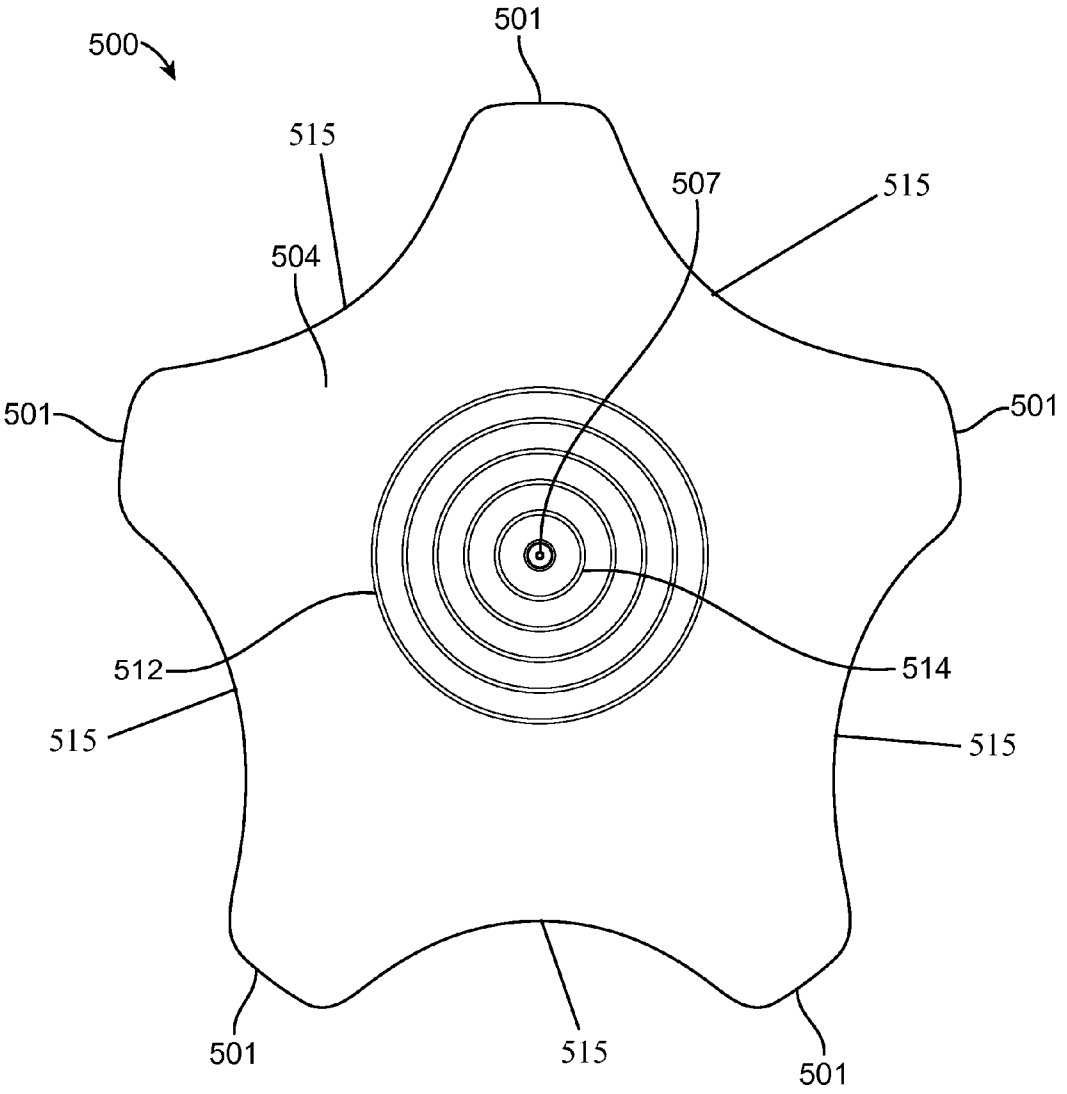


FIG. 5(e)

MUSCLE EXERCISE DEVICE

PRIORITY NOTICE

[0001] The present application claims priority under 35 U.S.C. §119(e) to U.S. Provisional Patent Application Ser. No. 61/916,219 filed on Dec. 15, 2013, the disclosure of which is incorporated herein by reference in its entirety.

STATEMENT REGARDING FEDERAL SPONSORSHIP

[0002] No part of this invention was a result of any federally sponsored research.

TECHNICAL FIELD OF THE INVENTION

[0003] The present invention relates in general to muscle exercising devices and more specifically to portable muscle exercise devices providing a user with compression resistance while having no moving parts, requiring minimal adjustments to use and which may be utilized from a standing, sitting, reclined, supine, and/or prone user position. While exemplary uses of some embodiments of the present invention may be for exercising abdominal muscles, devices may also be used to exercise other muscles of the body.

COPYRIGHT AND TRADEMARK NOTICE

[0004] A portion of the disclosure of this patent application may contain material that is subject to copyright protection. The owner has no objection to the facsimile reproduction by anyone of the patent document or the patent disclosure, as it appears in the Patent and Trademark Office patent file or records, but otherwise reserves all copyrights whatsoever.

[0005] Certain marks referenced herein may be common law or registered trademarks of third parties affiliated or unaffiliated with the applicant or the assignee. Use of these marks is by way of example and should not be construed as descriptive or to limit the scope of this invention to material associated only with such marks.

BACKGROUND OF THE INVENTION

[0006] It is well known that it is desirable for a person to exercise the various muscles in the body, e.g. the abdominal region muscles, by performing repeated exercises against some form of resistance, for example for the purposes of burning calories, toning those muscles, increasing back strength, or for improving bowel movements. For many exercise enthusiasts, regardless of age, gender, or experience, the proverbial "six pack" is the ultimate end goal of exercising a person's abdominal region, where a six pack is a region of abdominal muscles below the enthusiast's diaphragm visibly showing at least six well defined abdominal muscle regions on the enthusiast, in a two-by three matrix of muscle.

[0007] Traditionally, the abdominal region was exercised by a person performing sit-ups and/or crunches exercises. The problems of a person performing sit-ups and/or crunches without the assistance of any other device are well known in the related art and result in at least four problems. Sit-ups and crunches are traditionally performed on a floor with the person repeatedly transitioning from a supine to a reclined position, while on the floor. In this disclosure supine is synonymous with a person lying flat on a floor, with the person's back against the floor. And in this disclosure reclined refers to a position where the person's upper back is off the floor, but the buttocks are touching the floor.

[0008] The first problem associated with traditional sit-ups and crunches is the problem of even getting into a reclined or supine position on the floor. For many people the floor location and getting into such a supine or reclined position on the floor is problematic. For example, elderly people can have difficulty in getting into a reclined or supine position on the floor and then transitioning back again off the floor from such a position. While others would simply prefer to not exercise from the floor.

[0009] The second problem that traditional sit-ups and crunches create is a possibility of stress, strain, discomfort, and pain in the lower back region because the lower back region is not supported when doing traditional sit-ups and crunches.

[0010] A third problem that traditional sit-ups and crunches create is a possibility of stress, strain, discomfort, and pain in the neck because while the sit-ups or crunches are being performed gravity continually pulls upon the person's head which can cause stress, strain, discomfort, and pain in the neck region. In addition, headaches are also a common problem stemming from an unsupported head during sit-ups and/or crunches exercises.

[0011] And a fourth problem arises because as a person becomes more in-shape, i.e. in better physical condition, the person must perform increasingly more repetitions of sit-ups and/or crunches to properly exercise the now stronger abdominal muscles which becomes time consuming. This occurs because the resistance which generates the abdominal exercise in sit-ups and crunches is merely the weight of the person performing the exercise acting against gravity and thus the effectiveness of traditional sit-ups and crunches are limited by the person's own body weight, unless some artificial weights are added or some form of increased resistance beyond a person's own body weight is provided.

[0012] Some of the related art has attempted to address the problems with traditional sit-ups and crunches and that related art may be divided into three very broad categories for the purpose of discussing the problems of the related art: large abdominal exercise machines, electrical abdominal exercise devices, and simpler abdominal exercise devices. Each these categories of related art has introduced new problems or failed to alleviate the four problems associated with traditional sit-ups and crunches.

[0013] First, consider breathing exercise devices, which do not fit into the three broad categories of related art noted above and represents an outlier in the related art. Despite how some such devices are titled in the patent literature, unless a breathing exercise device has an additional independent abdominal exercise feature, breathing exercise devices are not abdominal exercise devices; that is, the muscles exercised while breathing, while moving a person's diaphragm, are not the same group of muscles that are primarily exercised by sit-ups and crunches. Breathing exercise devices do not solve the fundamental problem of exercising abdominal muscles by performing repeated exercises against some resistance.

[0014] Next, consider the related art category of large abdominal exercise machines, where the user may be supine, sitting, kneeling, or standing when using such a machine. In general these large machines do successfully address the problem of a person being limited to the resistance of their

own weight associated with traditional sit-ups and crunches, by having added weights or other created increased resistance means (e.g. elastic bands).

[0015] Also, with respect to supine machines, that is machines where the user is supine, these machines can alleviate some of the problems with getting into the supine position on the floor by having a bench to support the user which is some distance off the floor. These machines where the user is supine can also alleviate some of the neck pain problems by having the user's head supported by the bench.

[0016] However, these machines where the user is supine do not generally address the problem of lower back pain because in most of these machines there is no specific lower back support; that is, the supporting bench which may support the buttocks region and upper back region has no contour to support the curve of the lower back.

[0017] In contrast, in these large abdominal exercise machines where the user is kneeling upon the user's knees the problem of neck pain persists because the user's head in not supported in such machines where the user is kneeling. This category of large abdominal exercise machines where the user is kneeling generally operate either by having a deck that slides straight along a pair of rails or a rotary platform. However, this category of machines where the user is kneeling do tend to alleviate the problems associated with lower back pain and the problem of getting into a supine or reclined position on the floor.

[0018] In these large abdominal exercise machines where the user is sitting or standing, the three problems associated with traditional sit-ups and crunches of: (1) trouble getting into a supine or reclined position on the floor; (2) of creating lower back pain; and (3) of creating neck pain are generally alleviated.

[0019] However, all of the large abdominal exercise machines as a category, whether a user is supine, kneeling, sitting, or standing, introduce the following four new undesirable problems: complexity, bulkiness, immobility, and excessive expense.

[0020] First, the machines are complex in the sense they have moving parts and adjustments to make to set-up and operate the machines (such as changing weights or elastic bands). Moving parts are not desirable because they often create safety problems. For example, moving parts often create geometry where a user may get pinched, have hair get caught or even have fingers and toes crushed by moving weights. Additionally, in general, as the number of moving parts increases there is a correlated increase in maintenance and longevity problems with machines With respect to moving parts and adjustments, consider back inversion machines which require a user to first make a size adjustment to the machine to accommodate the height of the user, then the user straps their feet into the machine securely, then the user rotates so the user is hanging upside down, and finally then the user at that point can perform inverted sit-ups. Back inversion machines illustrate the complexity created by having moving parts and adjustments required to use a machine.

[0021] Furthermore some required adjustments in the related art actually require a user to be secured to the device, which can present an undesirable safety hazard (e.g. a user can get stuck in a device) or result in the user feeling claustrophobic. As an example, consider the back inversion machine discussed above where a user could get stuck in the inverted position.

[0022] Second, because the machines are large in comparison to a user, they are bulky often having a large framework to support both the machine and the user. Because of this bulkiness, the locations where such a machine can be located are limited. Further because of this bulkiness, it may be difficult to even install such a large machine into a location the user would prefer. For example, doorways and stairs can present installation problems. It is desirable for an abdominal exercise device not to be bulky, yet at the same time for the user to feel comfortable and secure in using the abdominal exercise device.

[0023] Third, also because of these machines large size, complexity, and bulkiness, the machines are not mobile for most users. That is, this category of large abdominal exercise machines lacks portability. Portability here is used in the following context: it is desirable for an abdominal exercise device to be able to be moved from one location to another by one person, with minimal effort in terms of taking down the abdominal exercise device, transporting, and setting the abdominal exercise device back up. A device that can be easily held in one hand of a user generally fits the requirement of portability.

[0024] The portability problem in the art is related to two other problems: safety from dropping and breakage from dropping. Generally an easily portable device is also light weight, which generally also means dropping the light weight device will not result in injuries nor break the device. Conversely, many non-portable devices can injure a user if dropped and can break if dropped, both undesirable problems in the art.

[0025] Lastly, such large machines tend to be expensive in comparison to other alternatives, costing several hundred to thousands of U.S. dollars. These large machines as a group are more typical of use in professional gyms, i.e. gyms which require membership.

[0026] The next category of related art to discuss, the electrical abdominal exercise devices is best discussed by further categorizing into two sub-categories: electrical muscle stimulating devices and electromyography (EMG) reporting devices. The electrical muscle stimulating devices are discussed first.

[0027] Like the large abdominal exercise machines where the user is sitting, with the electrical muscle stimulating devices, the three problems associated with traditional sit-ups and crunches of: (1) trouble getting into a supine or reclined position on the floor; (2) of creating lower back pain; and (3) of creating neck pain are generally alleviated. However, these electrical muscle stimulating devices have four other problems. First, they tend to be more expensive than other abdominal exercise alternatives such as the simpler abdominal exercise devices discussed below. Second, many users are not comfortable with the sensations created when an electrical muscle stimulating device electrically stimulates a user's muscles without the user consciously intending to exercise the given muscle. Essentially these electrical muscle stimulating devices require the user to get accustomed to the sensation of having unintentional muscle spasms. Thirdly, these devices because they are electrical require a power source, either by plugging the device into an electrical outlet which limits mobility or via batteries which also have a limited useful charge. And lastly, most electrical muscle stimulating devices require proper training to use, as the devices are generally used by professional physical therapists (and occupational therapists) and thus have many settings and adjust-

ments to make to properly use the device. The diversity of settings and adjustments make use comparatively complex and less than desirable for the average consumer.

[0028] With respect to the EMG reporting devices, despite how some of these inventions are titled in the patent literature, they are not exercise machines but rather merely reporting devices. That is, EMG devices are biofeedback devices reporting muscle activity information back to the user, which are often used in re-training muscles and nerves that have been injured. These EMG devices do not provide any resistance training for muscles and thus do not solve the fundamental problem of exercising abdominal muscles by performing repeated exercises against some resistance.

[0029] In the category of simpler abdominal exercise devices, these abdominal exercise devices as a related art category are generally smaller, less complex, less bulky, more portable, and less expensive than the large abdominal exercise machines discussed above. These simpler abdominal exercise devices are smaller and less bulky as a resulting of dispensing with the typical supporting framework associated with the larger abdominal exercise machines. These simpler abdominal exercise devices are generally less complex in that they have less moving parts or no moving parts; although some still require adjustments to use. And because these simpler devices are smaller and less cumbersome they tend to be more portable. Likewise, because these simpler devices are smaller and less cumbersome they tend to be less expensive than the large abdominal exercise machines. Also, unlike the electrical muscle stimulating devices, these simpler devices do not create the unusual sensations associated with artificial muscle stimulation and do not require electricity to operate.

[0030] However, because these simpler devices have lost the support framework associated with the larger abdominal exercise machines many of these simpler devices must be utilized on the floor from the supine and/or reclined position or were intentionally designed to be used from the floor and thus have the first problem of traditional sit-ups and crunches, the problem that for some users the floor location is undesirable or exercising from a supine or reclined position on the floor is undesirable.

[0031] Additionally, while this category of simpler abdominal exercise devices generally has less moving parts than the counter-part category of large abdominal exercise machines, many of these simpler devices still contain moving parts and thus present a degree of complexity to the user where it would be desirable to reduce this degree of complexity by reducing the number of moving parts.

[0032] Some of the simpler abdominal exercise devices are very simple in that they have no moving parts. For example, consider spherical or half-sphere devices, which largely are utilized by performing exercises on top of the curved geometrical surface, which have no moving parts at all. However, such spherical or half-sphere devices do have movement during their normal use because of how a user interacts with the curved geometrical surfaces and because the materials of construction and design permit elastic contraction and rebound. These spherical or half-sphere devices act as furniture and as a main purpose serve to improve a user's balance and the muscles associated with fine balance control, often referred to as "core-strength" in the art. While such spherical or half-sphere devices are simpler in the sense they have no moving parts, they are actually difficult to master because of the fine balance required to exercise upon a curved geometrical surface with elastic properties that readily moves in response to the slightest shifts in a user's weight. For example, exercising while balancing upon a ball or even half-ball with a diameter in the one to four feet range is generally a difficult task for the average consumer. Additionally, these spherical and half-sphere devices are utilized from the floor location and thus have the first problem of traditional sit-ups and crunches, the problem that for some users have trouble getting into and out of the supine and/or reclined position on the floor.

[0033] Additionally, the related art category of simpler abdominal devices generally does not alleviate the problem of having to make adjustments to set-up and/or use the abdominal exercise device in question. It would be desirable for an abdominal exercise device which requires no or minimal adjustments to set-up the abdominal exercise device and no or minimal adjustments to utilize the abdominal exercise device.

[0034] In summary, there are nine major problems associated with exercising abdominal muscle regions. The first four problems are the problems associated with traditional sit-ups and crunches, which are: (1) a user having difficulty in getting into a supine and/or reclined position on the floor; (2) problems of lower back pain due to a lack of lower back support; (3) problems of neck pain and headaches due to a lack of head support; and (4) available resistance being limited to a user's own weight. A fifth problem is the problem of undesirable complexity. Complexity may arise because of moving parts and/or because of the need to make adjustments to set-up and use the device in question. Complexity also results in safety concerns as discussed above. A sixth problem is that of bulkiness. This problem limits the location of where a device may be used or even in getting the device into a desired location. A seventh problem is one of portability. Ideally, an abdominal exercise device is readily portable by one person and may be easily transported to other locations of intended use by one person and with one hand. As sub-sets to the portability problem, the device should be light weight so as not to injure a user when dropped and not to break when dropped. An eighth problem is one of expense. It is desirable to have a device which is inexpensive to manufacture and affordable to potential buyers. And lastly, there is the group of problems associated with the electrical muscle stimulating devices, i.e. the problem of a user having to get used to the electrical pulses and having unconscious muscle contractions, along with the typical problems that electrical device present of needing electrical power to operate. There is a need in the art to address each of these nine problem areas.

[0035] It is to these ends that the present invention has been developed.

BRIEF SUMMARY OF THE INVENTION

[0036] To minimize the limitations in the prior art, and to minimize other limitations that will be apparent upon reading and understanding the present specification, the present invention may describe a muscle exercising device.

[0037] In some embodiments, the muscle exercise device with no moving parts may be used from a sitting, standing, reclined, supine, and/or prone position. In some embodiments, the muscle exercise device may be portable (mobile). In some exemplary embodiments, the device may comprise a resilient member. In some embodiments, the member may comprise an upper exterior surface and a lower exterior surface disposed opposite. In some exemplary embodiments, the member may comprise an overall five pointed star shape. In

some embodiments, the resilient property may be derived from one or more of a material of construction of the member and/or a gas filled interior volume. In some embodiments, the member may be configured to be engaged by a first location on the user's body. In some embodiments, the member may be configured to be engaged by the second, different, location on the user's body. In some embodiments, when the user may exert a compression force by squeezing the first location towards the second location, the user's muscles between the first location and the second location may be exercised.

[0038] It is an objective of the present invention to provide a muscle exercising device that may satisfactorily address the four problems associated with traditional sit-ups and crunches of: (1) a user having difficulty in getting into a supine and/or reclined position on the floor; (2) of lower back pain due to a lack of lower back support; (3) of neck pain and headaches due to a lack of head support; and (4) of available resistance being limited to a user's own weight.

[0039] That is, it is an objective of the present invention to provide a muscle exercising device that may be capable of use in a diverse array of user positions, such as: standing, sitting, reclined, supine, and/or prone. For example, a user may decide to use some embodiments of the present invention in the sitting position and thus eliminate problem the first three problems associated with traditional sit-ups and crunches.

[0040] It is another objective of the present invention to provide a muscle exercising device with reduced levels of complexity that is currently present in much of the related art of abdominal exercise devices. In terms of complexity, it may be desirable to reduce the number of moving parts and to reduce any need for adjustments in setting up and using abdominal exercise devices. This improves safety and reduces maintenance concerns. Various embodiments of the present invention may accomplish such objectives.

[0041] It is another objective of the present invention to provide a muscle exercising device with reduced bulkiness that is present in the larger related art machines. It may be desirable to have an abdominal exercise device that may be easily installed, set-up and used in a diverse array of locations, where the size of a doorway or the presence of stairs or other obstacles do not present any degree of difficulty in terms of setting up and using the abdominal exercise device.

[0042] It is another objective of the present invention to provide a muscle exercising device that may be portable (mobile), whereby a single user may easily transport the muscle exercise device using only one hand. As sub-sets to the portability objective, it is an objective of the present invention to provide a muscle exercise device that may be light weight, so there is no safety concern with dropping the device and no concern the device might break if dropped.

[0043] It is another objective of the present invention to provide a muscle exercising device that is less expensive to purchasers (e.g. consumers) than many of the available alternative abdominal exercise devices, such as the large abdominal exercise machines utilized in membership based gyms.

[0044] It is yet another objective of the present invention to not have the problems associated with the electrical abdominal exercise devices. That is the present invention does not create an unusual sensation in the user associated when a user's muscles are electrically stimulated by an electrical muscle stimulating device. Further, because some embodiments of the present invention may not electrical, there may not be problems associated with bringing electricity to the device to operate; that is, there is no need for electrical cords or wires or batteries which presents a more desirable device for the user in that the present invention is simpler and more dependable.

[0045] These and other advantages and features of the present invention are described herein with specificity so as to make the present invention understandable to one of ordinary skill in the art, both with respect to how to practice the present invention and how to make the present invention.

BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWINGS

[0046] Elements in the figures have not necessarily been drawn to scale in order to enhance their clarity and improve understanding of these various elements and embodiments of the abdominal exercise device. Furthermore, elements that are known to be common and well understood to those in the industry are not depicted in order to provide a clear view of the various embodiments of the present invention.

[0047] FIG. **1**(*a*) may depict an exemplary embodiment of a muscle exercising device from an overall perspective view.

[0048] FIG. **1**(*b*) may depict the exemplary embodiment shown in FIG. **1**(*a*) while in an exemplary use by a user performing abdominal crunches with the muscle exercising device, from a sitting position.

[0049] FIG. **2**(*a*) may depict the exemplary embodiment of FIG. **1**(*a*) and FIG. **1**(*b*) from a top view.

[0050] FIG. **2**(*b*) may depict the exemplary embodiment of FIG. **1**(*a*), FIG. **1**(*b*), and FIG. **2**(*a*) from a side view.

[0051] FIG. **3**(*a*) may depict an exemplary embodiment of a muscle exercising device showing a cross-sectional view showing an embodiment where the muscle exercising device may be of a solid construction.

[0052] FIG. **3**(*b*) may depict an exemplary embodiment of a gas inflatable muscle exercising device, shown from a cross-sectional view depicting the muscle exercising device may be substantially hollow.

[0053] FIG. **4**(*a*) may depict an exemplary use of the muscle exercising device from a standing position.

[0054] FIG. **4**(*b*) may depict an exemplary use of muscle exercising device from a reclined position.

[0055] FIG. **5**(*a*) may depict an exemplary embodiment of a muscle exercising device from an overall perspective view.

[0056] FIG. **5**(*b*) may depict the exemplary embodiment of FIG. **5**(*a*) from a top view.

[0057] FIG. **5**(*c*) may depict the exemplary embodiment of FIG. **5**(*a*) from a side view.

[0058] FIG. **5**(*d*) may depict an exemplary embodiment of a gas inflatable muscle exercising device, shown from a cross-sectional view depicting the muscle exercising device may be substantially hollow.

[0059] FIG. **5**(*e*) may depict the exemplary embodiment of FIG. **5**(*a*) from a bottom view.

REFERENCE NUMERAL SCHEDULE

[0060] **100** muscle exercising device **100**

[0061] **101** prong **101**

[0062] **102** upper exterior surface **102**

[0063] **103** single continuous seam **103**

[0064] **104** lower exterior surface **104**

[0065] **106** interior volume **106**

[0066] **107** valve **107**

[0067] **108** valve housing **108**

[0068] **109** member thickness **109**

[0069] **110** upper interior surface **110**
[0070] **111** lower interior surface **111**
[0071] **112** textured surface **112**
[0072] **113** first region **113**
[0073] **115** side indenture **115**
[0074] **300** muscle exercising device **300**
[0075] **301** prong **301**
[0076] **302** upper exterior surface **302**
[0077] **303** single continuous seam **303**
[0078] **304** lower exterior surface **304**
[0079] **305** solid **305**
[0080] **500** muscle exercising device **500**
[0081] **501** prong **501**
[0082] **502** upper exterior surface **502**
[0083] **503** single continuous seam **503**
[0084] **504** lower exterior surface **504**
[0085] **506** interior volume **506**
[0086] **507** valve **507**
[0087] **509** member thickness **509**
[0088] **510** upper interior surface **510**
[0089] **511** lower interior surface **511**
[0090] **512** textured surface **512**
[0091] **513** first region **513**
[0092] **514** second region **514**
[0093] **515** side indenture **515**
[0094] **900** user **900**

DETAILED DESCRIPTION OF THE INVENTION

[0095] A muscle exercising device is described and disclosed. In some embodiments, the muscle exercising device may be termed an abdominal exercise device, a five pronged star shaped muscle exercising device, and the like. In some embodiments, the muscle exercise device with no moving parts may be used from a sitting, standing, reclined, supine, and/or prone position. Various abdominal exercises may be performed by the user using the muscle exercising device. Other muscle groups of the user may also be exercised when the user uses the muscle exercise device.

[0096] In some exemplary embodiments, the muscle exercising device may comprise a single three-dimensional member with five prongs approximating a five pointed star shape, but where such points may be generally rounded, with a generally concave upper surface and either a substantially flat bottom surface or a concave lower surface. Such a general shape may comprise radial symmetry among the various prongs, such as the five points (prongs). The star points of the muscle exercising device may be prongs within this disclosure. In some five pronged embodiments, each prong may directly oppose a region of side indenture, such that a perimeter of the muscle exercising device may be described as alternating from prong to side indenture and then back to prong again, moving around said perimeter. And the "generally rounded" prongs may mean these star prongs might not be pointed in a manner which could uncomfortably poke or harm a user. With respect to the generally concave surfaces, this may mean the upper surface may be curved approximating the curvature of a dome, where concave refers to bulging outwards in the sense of a concave polygon. With respect to the "substantially flat bottom surface," the bottom surface, in some embodiments, may be predominantly flat, except where the flat characteristic is interrupted towards the edges (continuous seam) of the muscle exercising device where the bottom surface (lower exterior surface) meets the upper surface (upper exterior surface). In some embodiments, where the bottom surface (lower exterior surface) may meet the upper surface (upper exterior surface) the bottom surface may be curved upwards to the region where the bottom surface meets the upper surface, forming a slightly concave bottom surface, along the device edges (continuous seam), so the device may not fold over onto itself when subjected to a compression force.

[0097] In terms of overall length (diameter), the various embodiments of the muscle exercising device may vary from 10 inches to 37 inches. And in terms of overall thickness, the various embodiment of the muscle exercising device may vary from 1.5 inches to 18 inches. In other embodiments, other dimensions are within the scope of the present invention. Note with respect to these dimensions, it is not desired nor intended to thereby unnecessarily limit the present invention by reason of such disclosure.

[0098] Additionally, the muscle exercising device may have a resilient characteristic (resilient property), such that the muscle exercising device may resist compression forces and return to its original shape after a user applies a compression force to the muscle exercising device. This resilient property may be derived from the geometry of the concave surface, materials of construction, and/or in other embodiments, because of a hollow gas filled chamber (inner volume) which may exert pressure onto interior surfaces of the device.

[0099] In some exemplary uses of the muscle exercising device from a sitting position, where one of the five prongs may be first positioned between the user's thighs, between the knees and hip, and the user's thighs may be squeezed to assist holding the muscle exercising device in place. Such a positioning on the body of the user may be a first location. The lower exterior surface (e.g. the substantially flat bottom surface) of the muscle exercising device should be facing the user, while the upper exterior surface (e.g. the upper concave surface) of the muscle exercising device should be facing away from user's torso. The prongs to the immediate sides of the prong between the thighs may then be on top of each thigh, which may leave two free prongs projecting upwards towards the user's torso. Next, the user may grasp these two free prongs, with one hand engaging each free prong. Alternatively, the user may hug these two free prongs, by wrapping each arm around such that one hand may engage each free prong. Such a hugging position and/or position of hands engaging each of the two free prongs may be a second location. And lastly, while holding the muscle exercising device with hands (and/or hugging) and thighs as described, the user may squeeze the muscle exercising device by exerting pressure from the two hands towards the thighs in the crunching motion. Such a motion by the user against the muscle exercising device may activate and exercise various abdominal muscles in the user as in a crunch type of exercise. The muscle exercising device may provide compression resistance and once the user may release the user applied compression force, the muscle exercising device may return to its original unloaded shape and may be ready for another cycle of the crunching motion.

[0100] In the following discussion that addresses a number of embodiments and applications of the present invention, reference is made to the accompanying drawings that form a part thereof, where depictions are made, by way of illustration, of specific embodiments in which the invention may be practiced. It is to be understood that other embodiments may be utilized and changes may be made without departing from the scope of this invention.

[0101] FIG. **1**(*a*) may depict an exemplary embodiment of muscle exercising device **100** from an overall perspective view and FIG. **1**(*b*) may depict the exemplary embodiment shown in FIG. **1**(*a*) while in use by a user **900** performing abdominal crunches with may depict **100**.

[0102] Note, in both FIGS. **1**(*a*) and **1**(*b*) the exemplary embodiment depicted may be a single three dimensional member comprising five prongs **101**, which may generally approximate a five-pointed star shape. Each prong **101** may be sized to be held by one hand. While the five prongs **101** in FIGS. **1**(*a*) and **1**(*b*) may be identical, in other embodiments, not depicted, each prong **101** could vary in size and shape from the other the prongs.

[0103] In some embodiments, muscle exercising device **100**, may comprise radial symmetry among the various prongs **101** (about a radial center), such as some five prong **101** embodiments). In some five pronged **101** embodiments, each prong **101** may directly oppose a region of side indenture **115**, such that a perimeter of the muscle exercising device **100** may be described as alternating from prong **101** to side indenture **115** and then back to prong **101** again, moving around said perimeter. A single continuous seam **103** may track around said perimeter. Any two prongs **101** located closer to each other than to other prongs **101** may be a pair of adjacent prongs **101**. In some embodiments, each pair of adjacent prongs **101** may be separated by side indenture **115**. Each side indenture **115** may be concave with respect to the radial center, such that the perimeter of muscle exercising device **100** may alternate from prong **101** to side indenture **115**. Such concavity, may be important for user **900** engagement, by providing regions (e.g. the first location and/or the second location) to engage various body parts of user **900**.

[0104] In some embodiments, muscle exercising device **100**, e.g. as depicted in FIGS. **1**(*a*) and **1**(*b*), may comprise two opposing surfaces, an upper exterior surface **102**, and a lower exterior surface **104**. In some embodiments, e.g. muscle exercising device **100**, upper exterior surface **102** may be an upper concave surface. In some embodiments, e.g. muscle exercising device **100**, lower exterior surface **104** may be a substantially bottom flat surface. Single continuous seam **103** may be a region where the two surfaces, upper exterior surface **102** and lower exterior surface **104**, may join all along a perimeter of muscle exercising device **100**.

[0105] FIG. **1**(*b*) may depict the exemplary embodiment shown in FIG. **1**(*a*) while in an exemplary use by user **900** performing abdominal crunches with muscle exercising device **100**, from a sitting position. One of the five prongs **101** may be first positioned between the user **900**'s thighs, between the knees and hip, and the user **900**'s thighs may be squeezed to assist holding muscle exercising device **100** in place. Such a positioning on the body of user **900** may be the first location. Lower exterior surface **104** (e.g. the substantially flat bottom surface) of muscle exercising device **100** should be facing user **900**, while upper exterior surface **102** (e.g. the upper concave surface) of muscle exercising device **100** should be facing away from user **900**'s torso. The prongs **101** to the immediate sides of the prong **101** between the thighs may then be on top of each thigh, which may leave two free prongs **101** projecting upwards towards the user **900**'s torso. Next, user **900** may grasp these two free prongs **101**, with one hand engaging each free prong **101**. Alternatively, user **900** may hug these two free prongs **101**, by wrapping each arm around such that one hand may engage each free prong **101**. Such a hugging position and/or position of hands engaging each of the two free prongs **101** may be the second location. And lastly, while holding muscle exercising device **100** with hands (and/or hugging) and thighs, user **900** may squeeze muscle exercising device **100** by exerting pressure from the two hands towards the thighs in the crunching motion. Muscle exercising device **100** may provide compression resistance and once user **900** may release user **900** applied compression force, muscle exercising device **100** may return to its original unloaded shape and may be ready for another cycle of the crunching motion.

[0106] FIG. **2**(*a*) may depict the exemplary embodiment of FIG. **1**(*a*) and FIG. **1**(*b*) from a top view. FIG. **2**(*b*) may depict the exemplary embodiment of FIG. **1**(*a*), FIG. **1**(*b*), and FIG. **2**(*a*) from a side view. FIG. **2**(*a*) and FIG. **2**(*b*) may not depict user **900**, just muscle exercising device **100**.

[0107] In some exemplary embodiments, muscle exercising device **100** may comprise a member. The member may comprise an upper exterior surface **102** and lower exterior surface **104** disposed opposite of upper exterior surface **102**. In some embodiments, the member may comprise a resilient property. The resilient property may be derived from one or more of a material of construction of the member and/or a gas exerting pressure upon interior surfaces of the upper exterior surface **102** and the lower exterior surface **104**. In some embodiments, the member may be configured to be engaged by the first location on user **900**'s body. In some embodiments, the member may be configured to be engaged by the second, different, location on user **900**'s body. In some embodiments, when user **900** may exert a compression force by squeezing the first location towards the second location, the user **900**'s muscles between the first location and the second location may be exercised as the resilient property may resist the compression force.

[0108] In some embodiments, the member may be a single article of manufacture. In some embodiments, the member may have no separate moving parts, apart from flex and bending of the member itself. In some embodiments, the member, e.g. as a single article of manufacture, may be manufactured using an injection molding process, wherein upper exterior surface **102** and the lower exterior surface **104** may be joined to each other along a single continuous seam **103**.

[0109] In some embodiments, the member may comprise a structure with a polygon shape when the member may be viewed from a top or a bottom view. In some embodiments, such a structure may comprise a variable thickness.

[0110] In some embodiments, each corner or each point of the polygon shape may be a prong **501**. In some embodiments, each prong **101** may be configured to be gripped (engaged) by at least one hand of the user **900**.

[0111] In some embodiments, the polygon shape may be selected from the group comprising: a triangle, a three pointed star, a square, a rectangle, a trapezoid, a diamond, a four pointed star, a pentagon, a five pointed star, a hexagon, a six pointed star, a seven pointed star, and the like. In some exemplary embodiments, the polygon shape may be the five pointed star shape.

[0112] In some embodiments, upper exterior surface **102** may comprises a textured surface **112**. Textured surface **112** may be configured to be engaged by the user (e.g. gripped). In some embodiments, lower exterior surface **104** may comprise textured surface **112**. In some embodiments, textured surface **112** may cover less than an entirety of upper exterior surface **102** or of lower exterior surface **104**. For example, and without limiting the scope of the present invention, textured sur-

face **112** may comprise a plurality of raised ridges in various patterns, a plurality of recessed channels in various patterns, and/or a plurality of raised protections, generally of less than 0.50 inches above upper exterior surface **102** and/or lower exterior surface **104**.

[0113] In some embodiments, upper exterior surface **102** may comprise a first region **113** for displaying a first graphic. In some embodiments, the first graphic may be viewable by user **900**. In some embodiments, lower exterior surface **104** may comprise a second region for displaying a second graphic. In some embodiments the second graphic may be viewable by user **900**. In some embodiments, the first graphic and the second graphic may be a same graphic. The first graphic and/or the second graphic may be selected from one or more of: at least one trademark, at least one logo, at least one brand, at least one tagline, at least one surface ornamentation, at least one marketing image, at least one promotion image, at least one personalized content, and the like. In some embodiments, the first graphic and/or the second graphic may be printed and/or adhered onto first region **113** and the second region, respectively. In some embodiments, the first graphic and/or the second graphic may be molded into first region **113** and the second region, respectively.

[0114] FIG. **3**(*a*) may depict an exemplary embodiment of muscle exercising device **300** showing a cross-sectional view showing an embodiment where muscle exercising device **300** may be of a solid construction. Muscle exercising device **300** may differ from muscle exercising device **100** in that muscle exercising device **300** may be of the solid construction, with no hollow interior; whereas, muscle exercising device **100** may comprise a hollow interior, such as an interior volume which may be filled with a gas. In some such exemplary embodiments of muscle exercising device **300**, the member may be a solid **305**. Solid **305** may be one or more materials construction which may provide the resilient property by properties inherent with the material of construction. In some such exemplary embodiments the material of construction may be one or more of a polyurethane foam, an ethylene vinyl acetate (EVA) foam, and the like. Because of such materials of construction and/or of the upper exterior surface **302** concave geometry, muscle exercising device **300** may be not only flexible but also resilient. In this exemplary embodiment, muscle exercising device **300** may resist compression forces applied to it by user **900** and may generally return to its original unloaded shape after the applied compression force ceases.

[0115] Note, with respect to the adverb "generally" as used in the preceding paragraph in reference to the device being able to return to its original unloaded shape, "generally" in this context may refer to the normal environmental conditions of use that may be expected of this device. For example, and without limiting the scope of the present invention, such embodiments of this device may flex while at the same resist a compression force applied to the device by user **900** and once user **900** ceases applying the compression force the device may return to its original unloaded shape. It should be understood that compression forces in excess of what user **900** would subject the device to may exceed the device's inherent resilient properties, such that the device rips or tears or may be unable to return to its original unloaded shape. Additionally, it should be understood that the device's resilient properties may gradually diminish over time as the materials age and may be repeatedly exposed to use.

[0116] Additionally, other materials aside from polyurethane foams and/or EVA foams may be used to comprise materials of construction for muscle exercising device **300**, as long as such materials may possess similar resilient properties as polyurethane foam and/or EVA foams, such as having a similar capacity to resist compression forces while at the same time retaining the ability to return to the device's original unloaded shape after the compression force ceases. Note with respect to the materials of construction, it is not desired nor intended to thereby unnecessarily limit the present invention by reason of such restricted disclosure.

[0117] In some embodiments, see e.g., FIG. **3**(*a*), the member may be solid **305** such that a volume defined by exterior surfaces of the member may be substantially occupied by the material(s) of construction of the member such that there may be no hollow interior disposed between upper exterior surface **302** and the lower exterior surface **304**.

[0118] In some embodiments, the member may be solid **305** such that the material(s) of construction of the member may run continuously from upper exterior surface **302** to lower exterior surface **304** such that there may be no hollow interior disposed between upper exterior surface **302** and the lower exterior surface **304**. However, in some embodiments, solid **305** may comprise a plurality of pores and/or a plurality of gas pockets, such as when the material of construction may be one or more foams, which may comprise a plurality of cells (which may be closed or open).

[0119] FIG. **3**(*b*) may depict an exemplary embodiment of a gas inflatable muscle exercising device **100**, shown from a cross-sectional view depicting muscle exercising device **100** as substantially hollow.

[0120] In some exemplary embodiments, upper exterior surface **102** may comprise an upper interior surface **110** which may be integral and disposed opposite of upper exterior surface **102**. In some embodiments, lower exterior surface **104** may comprise a lower interior surface **111** which may be integral and disposed opposite of lower exterior surface **104**. In some embodiments, upper interior surface and the lower interior surface may bound (enclose) an interior volume **106**.

[0121] In some embodiments, upper interior surface **110** may be separated from upper exterior surface **102** by a member thickness **109**. In some embodiments, lower interior surface **111** may be separated from lower exterior surface **104** by a member thickness **109**. In some embodiments, member thickness **109** may be comprised of the material(s) of construction.

[0122] In some embodiments, internal volume **106** may be configured to hold a gas. In some embodiments, internal volume **106** may be substantially filled with the gas such that the gas may exert a pressure upon upper interior surface **110** and the lower interior surface **111**. Such a gas pressure may contribute to the resilient property of the member of muscle exercising device **100**. In some embodiments, the gas may be air.

[0123] In some embodiments, the material(s) of construction of muscle exercising device **100** may be one or more of the group comprising: a flexible material, an injection moldable material, an elastomeric material, a thermoformed plastic, a thermoformed foam, thermoformed elastomer, and the like. In some embodiments, the material(s) of construction of muscle exercising device **100** may be one or more of the

group comprising: polyvinyl chloride (PVC), rubber, silicone, neoprene, woven materials, non-woven materials, mesh materials, and the like.

[0124] In some exemplary embodiments, e.g. as depicted in FIG. **3**(*b*), the material of construction may be PVC or like thermoformed plastic. As noted, the gas occupying interior volume **106** may be air. Because of this material of construction, the gas filled interior volume **106**, and/or upper exterior surface **102**, muscle exercising device **100** may not only be flexible, but also may be resilient. In some exemplary embodiments, muscle exercising device **100** may resist compression forces applied to it by user **900** and may generally return to its original unloaded shape after the applied compression force ceases. See the above discussion regarding adverb "generally."

[0125] Additionally, other materials may be used, as long as such materials may possess similar resilient properties as PVC. For example, and without limiting the scope of the present invention, the gas inflatable muscle exercising device **100** may also be constructed of rubber (synthetic and/or natural), silicone, and/or other elastomers. Note with respect to these materials of construction, it is not desired nor intended to thereby unnecessarily limit the present invention by reason of such restricted disclosure.

[0126] In some embodiments, the member may comprise at least one valve **107**. See e.g., FIG. **3**(*b*). In some embodiments, at least one valve **107** may comprise at least one gas flow channel. The at least one gas flow channel may be configured to permit passage of the gas. At least one valve **107** may be configured to permit filling internal volume **106** with the gas. In some embodiments, at least one valve **107** may be located in upper exterior surface **102** such that the at least one gas flow channel may run (be disposed) from upper exterior surface **102** to the upper interior surface **110**. In some exemplary embodiments, at least one valve **107** may be located in lower exterior surface **104** such that the at least one gas flow channel may run (be disposed) from lower exterior surface **104** to the lower interior surface **111**. In some exemplary embodiments, at least one valve **107** may be located in a center of lower exterior surface **104**.

[0127] Further, in FIG. **3**(*b*) valve **107** details may be depicted. In some such exemplary embodiments, valve **107** may be integrated with upper exterior surface **102** or with lower exterior surface **104**. In some embodiments, valve **107** may fit into a valve housing **108**. Additionally, valve housing **108** may also be integrated with upper exterior surface **102** or with lower exterior surface **104**. Valve **107** may ideally be formed from lower exterior surface **104** and an outside opening of valve **107** may be substantially flush with lower exterior surface **104**. In terms of valve **107** and/or valve housing **108** materials of construction, each may be of the same materials as the inflatable muscle exercising device **100**, such as PVC or they may other materials suitable for a valve and valve housing, such as thermoformed plastics and/or elastomers, such as silicone and/or rubbers. Note with respect to the materials of construction, it is not desired nor intended to thereby unnecessarily limit the present invention by reason of such restricted disclosure.

[0128] In other embodiments an inflatable muscle exercising device may comprise use of gas bladders and/or baffles within interior volume **106**. Such embodiments are not depicted in the figures.

[0129] FIG. **4**(*a*) may depict an exemplary use of muscle exercising device **100** from a standing position. One of the five prongs **101** may be first positioned between the user **900**'s thighs, between the knees and hip, and the user **900**'s thighs may be squeezed to assist holding muscle exercising device **100** in place. Such a positioning on the body of user **900** may be the first location. Lower exterior surface **104** (e.g. the substantially flat bottom surface) of muscle exercising device **100** should be facing user **900**, while upper exterior surface **102** (e.g. the upper concave surface) of muscle exercising device **100** should be facing away from user **900**'s torso. The prongs **101** to the immediate sides of the prong **101** between the thighs may then be on top of each thigh, which may leave two free prongs **101** projecting upwards towards the user **900**'s torso. Next, user **900** may grasp these two free prongs **101**, with one hand engaging each free prong **101**. Alternatively, user **900** may hug these two free prongs **101**, by wrapping each arm around such that one hand may engage each free prong **101**. Such a hugging position and/or position of hands engaging each of the two free prongs **101** may be the second location. And lastly, while holding muscle exercising device **100** with hands (and/or hugging) and thighs, user **900** may squeeze muscle exercising device **100** by exerting pressure the two hands towards the thighs in the crunching motion. Such a motion by user **900** against muscle exercising device **100** may activate and exercise various abdominal muscles in user **900** as in a crunch type of exercise. Muscle exercising device **100** may provide compression resistance and once user **900** may release user **900** applied compression force, muscle exercising device **100** may return to its original unloaded shape and may be ready for another cycle of the crunching motion.

[0130] Note, use of muscle exercising device **100** from the standing position, as described above, may requires user **900** to bend user **900**'s knees in order to hold muscle exercising device **100**, which may also result in user **900** exercising user **900**'s leg muscles while utilizing muscle exercising device **100** from the standing position.

[0131] FIG. **4**(*b*) may depict an exemplary use of muscle exercising device **100** from a reclined position. Here in the reclined position use, user **900**'s upper back may be off of the floor (ground or other substrate surface) as may be user **900**'s feet, with user **900**'s knees held upwards towards user **900**'s chest. Otherwise, use of from the reclined position may be the same as described and depicted from the sitting (see FIG. **1**(*b*)) and/or the standing position (see e.g., FIG. **4**(*a*)).

[0132] FIG. **5**(*a*) may depict an exemplary embodiment of a muscle exercising device **500** from an overall perspective view. FIG. **5**(*b*) may depict the exemplary embodiment of FIG. **5**(*a*) from a top view. FIG. **5**(*c*) may depict the exemplary embodiment of FIG. **5**(*a*) from a side view.

[0133] Muscle exercising device **500** may differ from muscle exercising device **100** in that muscle exercising device **500** may comprise a lower exterior surface **504** which may be more concave than that of lower exterior surface **104**.

[0134] In some exemplary embodiments, muscle exercising device **500** may comprise a member. The member may comprise an upper exterior surface **502** and lower exterior surface **504** disposed opposite of upper exterior surface **502**. In some embodiments, the member may comprise a resilient property. The resilient property may be derived from one or more of a material of construction of the member and/or a gas exerting pressure upon interior surfaces of the upper exterior surface **502** and the lower exterior surface **504**. In some embodiments, the member may be configured to be engaged by the first location on user **900**'s body. In some embodi-

ments, the member may be configured to be engaged by the second, different, location on user **900**'s body. In some embodiments, when user **900** may exert a compression force by squeezing the first location towards the second location, the user **900**'s muscles between the first location and the second location may be exercised as the resilient property may resist the compression force.

[0135] In some embodiments, the member may be a single article of manufacture. In some embodiments, the member may have no separate moving parts, apart from flex and bending of the member itself. In some embodiments, the member, e.g. as a single article of manufacture, may be manufactured using an injection molding process, wherein upper exterior surface **502** and the lower exterior surface **504** may be joined to each other along a single continuous seam **503**.

[0136] In some embodiments, a distance from an apex of upper exterior surface **502** to single continuous seam **503** may be greater than a different distance from an apex of lower exterior surface **504** to single continuous seam **503**. That is, an upper hemisphere of muscle exercising device **500** may be thicker than a lower hemisphere of muscle exercising device **500**.

[0137] In some embodiments, the member may comprise a structure with a polygon shape when the member may be viewed from a top or a bottom view. In some embodiments, such a structure may comprise a variable thickness.

[0138] In some embodiments, each corner or each point of the polygon shape may be a prong **501**. In some embodiments, each prong **501** may be configured to be gripped (engaged) by at least one hand of the user **900**.

[0139] In some embodiments, the polygon shape may be selected from the group comprising: a triangle, a three pointed star, a square, a rectangle, a trapezoid, a diamond, a four pointed star, a pentagon, a five pointed star, a hexagon, a six pointed star, a seven pointed star, and the like. In some exemplary embodiments, the polygon shape may be the five pointed star shape.

[0140] In some embodiments, muscle exercising device **500**, may comprise radial symmetry among the various prongs **501** (about a radial center), such as some five prong **501** embodiments). In some five pronged **501** embodiments, each prong **501** may directly oppose a region of side indenture **515**, such that a perimeter of the muscle exercising device **500** may be described as alternating from prong **501** to side indenture **515** and then back to prong **501** again, moving around said perimeter. Single continuous seam **503** may track around said perimeter. Any two prongs **501** located closer to each other than to other prongs **501** may be a pair of adjacent prongs **501**. In some embodiments, each pair of adjacent prongs **501** may be separated by side indenture **515**. Each side indenture **515** may be concave with respect to the radial center, such that the perimeter of muscle exercising device **500** may alternate from prong **501** to side indenture **515**. Such concavity, may be important for user **900** engagement, by providing regions (e.g. the first location and/or the second location) to engage various body parts of user **900**.

[0141] In some embodiments, upper exterior surface **502** may comprises a textured surface **512**. Textured surface **512** may be configured to be engaged by the user (e.g. gripped). In some embodiments, lower exterior surface **504** may comprise textured surface **512**. In some embodiments, textured surface **512** may cover less than an entirety of upper exterior surface **502** or of lower exterior surface **504**. For example, and without limiting the scope of the present invention, textured surface **512** may comprise a plurality of raised ridges in various patterns, a plurality of recessed channels in various patterns, and/or a plurality of raised protections, generally of less than 0.50 inches above upper exterior surface **502** and/or lower exterior surface **504**.

[0142] In some embodiments, upper exterior surface **502** may comprise a first region **513** for displaying a first graphic. In some embodiments, the first graphic may be viewable by user **900**. For example, and without limiting the scope of the present invention, first region **513** depicted in FIG. **5**(*b*) may be larger or smaller in other embodiments and may be of different shapes and/or designs. In some embodiments, lower exterior surface **504** may comprise a second region **514** for displaying a second graphic. In some embodiments the second graphic may be viewable by user **900**. In some embodiments, the first graphic and the second graphic may be a same graphic. The first graphic and/or the second graphic may be selected from one or more of: at least one trademark, at least one logo, at least one brand, at least one tagline, at least one surface ornamentation, at least one marketing image, at least one promotion image, at least one personalized content, and the like. In some embodiments, the first graphic and/or the second graphic may be printed and/or adhered onto first region **513** and second region **514**, respectively. In some embodiments, the first graphic and/or the second graphic may be molded into first region **513** and second region **514**, respectively.

[0143] FIG. **5**(*d*) may depict an exemplary embodiment of a gas inflatable muscle exercising device **500**, shown from a cross-sectional view depicting muscle exercising device **500** as substantially hollow.

[0144] In some exemplary embodiments, upper exterior surface **502** may comprise an upper interior surface **510** which may be integral and disposed opposite of upper exterior surface **502**. In some embodiments, lower exterior surface **504** may comprise a lower interior surface **511** which may be integral and disposed opposite of lower exterior surface **504**. In some embodiments, upper interior surface and the lower interior surface may bound (enclose) an interior volume **506**.

[0145] In some embodiments, upper interior surface **510** may be separated from upper exterior surface **502** by a member thickness **509**. In some embodiments, lower interior surface **511** may be separated from lower exterior surface **504** by a member thickness **509**. In some embodiments, member thickness **509** may be comprised of the material(s) of construction.

[0146] In some embodiments, internal volume **506** may be configured to hold a gas. In some embodiments, internal volume **506** may be substantially filled with the gas such that the gas may exert a pressure upon upper interior surface **510** and the lower interior surface **511**. Such a gas pressure may contribute to the resilient property of the member of muscle exercising device **500**. In some embodiments, the gas may be air.

[0147] In some embodiments, the material(s) of construction of muscle exercising device **500** may be one or more of the group comprising: a flexible material, an injection moldable material, an elastomeric material, a thermoformed plastic, a thermoformed foam, thermoformed elastomer, and the like. In some embodiments, the material(s) of construction of muscle exercising device **500** may be one or more of the

group comprising: polyvinyl chloride (PVC), rubber, silicone, neoprene, woven materials, non-woven materials, mesh materials, and the like.

[0148] In some exemplary embodiments, e.g. as depicted in FIG. **5**(*d*), the material of construction may be PVC or like thermoformed plastic. As noted, the gas occupying interior volume **506** may be air. Because of this material of construction, the gas filled interior volume **506**, and/or upper exterior surface **502**, muscle exercising device **500** may not only be flexible, but also may be resilient. In some exemplary embodiments, muscle exercising device **500** may resist compression forces applied to it by user **900** and may generally return to its original unloaded shape after the applied compression force ceases. See the above discussion regarding adverb "generally."

[0149] Additionally, other materials may be used, as long as such materials may possess similar resilient properties as PVC. For example, and without limiting the scope of the present invention, the gas inflatable muscle exercising device **500** may also be constructed of rubber (synthetic and/or natural), silicone, and/or other elastomers. Note with respect to these materials of construction, it is not desired nor intended to thereby unnecessarily limit the present invention by reason of such restricted disclosure.

[0150] In some embodiments, the member may comprise at least one valve **507**. See e.g., FIG. **5**(*d*). In some embodiments, at least one valve **507** may comprise at least one gas flow channel. The at least one gas flow channel may be configured to permit passage of the gas. At least one valve **507** may be configured to permit filling internal volume **506** with the gas. In some embodiments, at least one valve **507** may be located in upper exterior surface **502** such that the at least one gas flow channel may run (be disposed) from upper exterior surface **502** to the upper interior surface **510**. In some exemplary embodiments, at least one valve **507** may be located in lower exterior surface **504** such that the at least one gas flow channel may run (be disposed) from lower exterior surface **504** to the lower interior surface **511**. In some exemplary embodiments, at least one valve **507** may be located in a center of lower exterior surface **504**.

[0151] Further, in FIG. **5**(*d*) valve **507** may be depicted. In some such exemplary embodiments, valve **507** may be integrated with upper exterior surface **502** or with lower exterior surface **504**. In some embodiments, valve **507** may fit into a valve housing. In some embodiments, valve **507** may fit into a valve housing may be integral, of available as a single article of manufacture. Additionally, the valve housing may also be integrated with upper exterior surface **502** or with lower exterior surface **504**. Valve **507** may ideally be formed from lower exterior surface **504** and an outside opening of valve **507** may be substantially flush with lower exterior surface **504**. In terms of valve **507** and/or the valve housing materials of construction, each may be of the same materials as the inflatable muscle exercising device **500**, such as PVC or they may other materials suitable for a valve and valve housing, such as thermoformed plastics and/or elastomers, such as silicone and/or rubbers. Note with respect to the materials of construction, it is not desired nor intended to thereby unnecessarily limit the present invention by reason of such restricted disclosure.

[0152] In other embodiments an inflatable muscle exercising device may comprise use of gas bladders and/or baffles within interior volume **506**. Such embodiments are not depicted in the figures.

[0153] FIG. **5**(*e*) may depict the exemplary embodiment of FIG. **5**(*a*) from a bottom view. In some exemplary embodiments, valve **507** may be depicted located in a center of lower exterior surface **504**.

[0154] In some embodiments, muscle exercising device **100** or **500** may be used by user **900** to perform various exercises to exercise various muscle groups of user **900**. Muscle exercising device **100** or **500** may be used for various floor exercises, various seated exercises, and/or various standing exercises. Some of such exercises may be for exercising abdominal muscles, while other exercise may exercise muscles other than abdominal muscles. For example, and without limiting the scope of the present invention, the various floor exercises may comprise crunches, back extensions, side bends, and the like. For example, and without limiting the scope of the present invention, the various seated exercises may comprise seated crunches, inner thigh squeezes, biceps/triceps, and the like. For example, and without limiting the scope of the present invention, the various standing exercises may comprise wall crunches, wall squats, chest pumps, and the like.

[0155] In some embodiments, the first location and the second location, may refer to locations on user **900**'s body where there may be engagement (physical contact) with muscle exercising device **100** or **500**. Some types of exercises may only have the first location.

[0156] For example, and without limiting the scope of the present invention, a crunch type of exercise may be performed as follows: (a) positioning muscle exercise device **100** or **500** between a floor substrate surface and user **900**'s lower back and upper buttocks region (e.g. such that a portion of upper exterior surface **102**/**502** or a portion of lower exterior surface **104**/**504** physically contacts the floor substrate surface); (b) placing each foot of user **900** with a sole flat upon the floor substrate surface; and (c) repeatedly raise user **900** upper body upwards away from the floor substrate and then lower upper body back towards the floor substrate surface. Hands of user **900** may optionally help to support the head and/or neck of user **900**. The positioning on step (a) may be deemed at the first location of user **900**'s body. A distance between feet may be varied, with a wider distance offering more stability to user **900**. A speed of repetition may be varied. A number of repetitions may be varied. During such crunch motions, user **900**'s upper back may or may not touch the floor substrate surface. During the exercise motion, abdominal muscles should be consciously activated (squeezed) for better results.

[0157] For example, and without limiting the scope of the present invention, a back extension type of exercise may be performed as follows: (a) positioning muscle exercise device **100** or **500** between the floor substrate surface and user **900**'s abdomen region (e.g. lower stomach and upper pelvic region) (e.g. such that a portion of upper exterior surface **102**/**502** or a portion of lower exterior surface **104**/**504** physically contacts the floor substrate surface); (b) placing toes of each foot onto the floor substrate surface, with legs generally straight; (c) raise upper body from the floor substrate surface such that the upper body is about parallel with the floor substrate surface; (d) repeatedly lift the upper body away from the floor substrate surface. The positioning on step (a) may be deemed at the first location of user **900**'s body. Hands of user **900** may optionally be placed behind the head and/or the neck of user **900**, or out to the sides for added difficulty, or out in front for added difficulty. A distance between feet may be varied, with

a wider distance offering more stability to user **900**. A speed of repetition may be varied. A number of repetitions may be varied. During such back extension motions, user **900**'s upper chest may or may not touch the floor substrate surface. During the exercise motion, back muscles should be consciously activated (squeezed) for better results.

[0158] For example, and without limiting the scope of the present invention, a side bend type of exercise may be performed as follows: (a) positioning muscle exercise device **100** or **500** between the floor substrate surface and a side of user **900**, such that a navel of user **900** is in approximate vertical alignment with a radial center of muscle exercise device **100** or **500** (e.g. such that a portion of upper exterior surface **102**/**502** or a portion of lower exterior surface **104**/**504** physically contacts the floor substrate surface); (b) placing toes of at least one foot upon the floor substrate surface, with legs generally straight; and (c) while maintaining the torso within a same general vertical plane, repeatedly lower torso towards the floor substrate surface and then raise. Then switch sides to exercise the other side of user **900**. The positioning on step (a) may be deemed at the first location of user **900**'s body. At least one hand may optionally support the head and/or the neck. At least one hand may optionally help to assist maintaining the torso in the general vertical plane. The second foot may be placed onto the floor substrate surface for added stability; and a distance between feet may be varied, with a wider distance offering more stability to user **900**. A speed of repetition may be varied. A number of repetitions may be varied. During such side bend motions, user **900**'s upper chest may or may not touch the floor substrate surface. During the exercise motion, muscles (e.g. obliques) should be consciously activated (squeezed) for better results.

[0159] For example, and without limiting the scope of the present invention, a seated crunch type of exercise may be performed as follows: (a) user **900** sits safely on edge of seating (e.g. a chair, a couch, and/or a bench); (b) maintain back of user **900** straight; (c) locate one prong **101** or **501** of muscle exercise device **100** or **500** between knees, while holding said prong **101** or **501** in place by user **900** squeezing inner thighs; (d); place hands or fists on top of muscle exercise device **100** or **500** onto side indenture **115** or **515** directly opposed from said prong **101** or **501** being squeezed by the knees; and (e) repeatedly, without bending elbows, crunch the upper body towards the knees against muscle exercise device **100** or **500**. The location in step (c) on user **900**'s body may be deemed the first location. The location in step (d) on user **900**'s body may be deemed the second location. A speed of repetition may be varied. A number of repetitions may be varied. During the exercise motion, abdominal muscles should be consciously activated (squeezed) for better results.

[0160] For example, and without limiting the scope of the present invention, an inner thigh squeeze type of exercise may be performed as follows: (a) position two adjacent prongs **101** or **501** of muscle exercise device **100** or **500** between knees, such that one side indenture **115** or **515**, not shared between the two adjacent prongs **101** or **501**, may partially conform to each thigh of user **900**; and (b) repeatedly squeeze inner thighs towards each other against muscle exercise device **100** or **500**, and then relax without letting muscle exercise device **100** or **500** slip away from being held between the thighs. In step (a), the location of a first thigh engagement may be the first location and the location of the other thigh engagement, a second thigh, may be the second location. A speed of repetition may be varied. A number of repetitions may be varied. During the exercise motion, inner thigh muscles should be consciously activated (squeezed) for better results.

[0161] Note, such inner thigh exercising may be performed while user **900** may be seated, or wherein user **900** may be standing, wherein user **900** may be supine.

[0162] For example, and without limiting the scope of the present invention, exercising of user **900**'s biceps and/or triceps may be performed as follows: (a) while holding muscle exercising device **100** upright, with one hand, a bottom hand, supporting a bottom most side indenture **115** or **515**; (b) the other hand, an upper hand, engages a different side indenture **115** or **515**, such that there is at least one unengaged side indenture **115** or **515** spaced between the hands; and (c) repeatedly squeeze the bottom hand towards the upper hand, while the upper hand may be squeezed towards the bottom hand, and then relax without letting muscle exercise device **100** or **500** slip away from being held by at least one hand. The squeezing of the bottom hand may exercise the bicep of the arm of the bottom hand. The squeezing of the upper hand may exercise the tricep of the arm of the upper hand. Switch hand position, such that the bottom hand becomes an upper hand and the former upper hand then becomes a bottom hand, to make sure biceps and triceps of both arms may be exercised. The location of engagement in step (a) may be the first location on user **900**'s body. The location of engagement in step (b) may be the second location on user **900**'s body. A speed of repetition may be varied. A number of repetitions may be varied. During the exercise motion, arm muscles (e.g. biceps and/or triceps) should be consciously activated (squeezed) for better results.

[0163] Note, such exercising of the biceps and/or triceps may be performed while user **900** may be seated, or wherein user **900** may be standing, wherein user **900** may be supine.

[0164] For example, and without limiting the scope of the present invention, a wall crunch type of exercise may be performed as follows: (a) user **900** leaning back against a wall (of suitable strength to bear user **900**'s weight) and into a squat position with the lower back and/or upper buttocks regions in physical contact with said wall; (b) maintain back of user **900** straight; (c) locate one prong **101** or **501** of muscle exercise device **100** or **500** between knees, while holding said prong **101** or **501** in place by user **900** squeezing inner thighs; (d); place hands or fists on top of muscle exercise device **100** or **500** onto side indenture **115** or **515** directly opposed from said prong **101** or **501** being squeezed by the knees; and (e) repeatedly, without bending elbows, crunch the upper body towards the knees against muscle exercise device **100** or **500**. The location in step (c) on user **900**'s body may be deemed the first location. The location in step (d) on user **900**'s body may be deemed the second location. A speed of repetition may be varied. A number of repetitions may be varied. During the exercise motion, abdominal muscles should be consciously activated (squeezed) for better results.

[0165] For example, and without limiting the scope of the present invention, a wall squat type of exercise may be performed as follows: (a) position muscle exercise device **100** or **500** between said wall and user **900**'s lower back and upper buttocks region (e.g. such that a portion of upper exterior surface **102**/**502** or a portion of lower exterior surface **104**/**504** physically contacts said wall); and (b) while user **900** may be leaning against muscle exercise device **100** or **500**, user **900** may repeatedly transition from a position where the upper thighs are about horizontally parallel with the floor substrate surface (e.g., such that the knees are about 90 degrees bent) to

a raised position such that muscle exercise device **100** or **500** remains disposed between user **900** and said wall. The location of engagement in step (a) may be the first location on user **900**'s body. A distance between feet may be varied, with a wider distance offering more stability to user **900**. A speed of repetition may be varied. A number of repetitions may be varied. During the exercise motion, leg muscles (e.g. quadriceps) should be consciously activated (squeezed) for better results.

[0166] For example, and without limiting the scope of the present invention, a chest pump type of exercise may be performed as follows: (a) engaging muscle exercise device **100** or **500** with each hand of user **900** located at a side indenture **115** or **515**, such that two adjacent prongs **101** or **501** may be disposed between the hands and closer to user **900**'s face than to legs of user **900**; and (b) repeatedly squeeze each hand towards each other against muscle exercise device **100** or **500** and then relax without letting muscle exercise device **100** or **500** slip away from being held. The two hand locations of engagement in step (a) may correspond to the first location and the second location. A speed of repetition may be varied. A number of repetitions may be varied. During the exercise motion, chest muscles should be consciously activated (squeezed) for better results.

[0167] Note, such exercising of the chest may be performed while user **900** may be seated, or wherein user **900** may be standing, wherein user **900** may be supine.

[0168] Note, exercises which may be performed by muscle exercise device **100** or muscle exercise device **500**, may also be performed by muscle exercise device **300**.

[0169] A muscle exercise device, such as an abdominal exercise device, has been described. The foregoing description of the various exemplary embodiments of the invention has been presented for the purposes of illustration and disclosure. It is not intended to be exhaustive or to limit the invention to the precise form disclosed. Many modifications and variations are possible in light of the above teaching without departing from the spirit of the invention.

[0170] While the invention has been described in connection with what is presently considered to be the most practical and preferred embodiments, it is to be understood that the invention is not to be limited to the disclosed embodiments, but on the contrary, is intended to cover various modifications and equivalent arrangements included within the spirit and scope of the appended claims.

What is claimed is:

1. A muscle exercising device, comprising:

a member; wherein the member comprises an upper exterior surface and a lower exterior surface disposed opposite of the upper exterior surface;

wherein the member comprises a resilient property; wherein the resilient property is derived from one or more of a material of construction of the member and/or a gas exerting pressure upon interior surfaces of the upper exterior surface and the lower exterior surface;

wherein the member is configured to be engaged by a first location on a user's body; and wherein the member is also configured to be engaged by a second, different, location on the user's body;

wherein when the user exerts a compression force by squeezing the first location towards the second location, the user's muscles between the first location and the second location are exercised as the resilient property resists the compression force.

2. The muscle exercising device according to claim **1**, wherein the member is a single article of manufacture.

3. The muscle exercising device according to claim **2**, wherein the single article of manufacture is manufactured using an injection molding process, wherein the upper exterior surface and the lower exterior surface are joined to each other along a single continuous seam.

4. The muscle exercising device according to claim **1**, wherein the member has a structure with a polygon shape when the member is viewed from a top or a bottom view and wherein the structure has a variable thickness disposed between the upper exterior surface and the lower exterior surface.

5. The muscle exercising device according to claim **4**, wherein each corner or each point of the polygon shape is a prong.

6. The muscle exercising device according to claim **5**, wherein each prong is radially oriented from a radial center of the muscle exercising device.

7. The muscle exercising device according to claim **6**, wherein any two prongs located closer to each other than to other prongs are a pair of adjacent prongs; wherein each pair of adjacent prongs is separated by a side indenture of the muscle exercising device; wherein each side indenture is concave with respect to the radial center, such a perimeter of the muscle exercising device alternates from prong to side indenture.

8. The muscle exercising device according to claim **5**, wherein each prong is configured to be gripped by a hand of the user.

9. The muscle exercising device according to claim **4**, wherein the polygon shape is selected from the group consisting of: a triangle, a three pointed star, a square, a rectangle, a trapezoid, a diamond, a four pointed star, a pentagon, a five pointed star, a hexagon, a six pointed star, and a seven pointed star.

10. The muscle exercising device according to claim **1**, wherein the member is a solid such that a volume defined by exterior surfaces of the member is substantially occupied by the material of construction of the member such that there is no hollow interior disposed between the upper exterior surface and the lower exterior surface.

11. The muscle exercising device according to claim **1**, wherein the upper exterior surface comprises an upper interior surface integral and disposed opposite of the upper exterior surface; wherein the lower exterior surface comprises a lower interior surface integral and disposed opposite of the lower exterior surface; wherein the upper interior surface and the lower interior surface bound an interior volume.

12. The muscle exercising device according to claim **11**, wherein the internal volume is configured to hold a gas, wherein the internal volume is filled with the gas such that the gas exerts a pressure upon the upper interior surface and the lower interior surface; wherein the gas pressure contributes to the resilient property of the member.

13. The muscle exercising device according to claim **12**, wherein the member comprises at least one valve; wherein the at least one valve comprises at least one gas flow channel, wherein the at least one gas flow channel is configured to permit passage of the gas; wherein the at least one valve is configured to permit filling the internal volume with the gas; wherein the at least one valve is located in the upper exterior surface such that the at least one gas flow channel runs from the upper exterior surface to the upper interior surface; or

wherein the at least one valve is located in the lower exterior surface such that the at least one gas flow channel runs from the lower exterior surface to the lower interior surface.

14. The muscle exercising device according to claim **12**, wherein the gas is air.

15. The muscle exercising device according to claim **1**, wherein the material of construction is one or more of the group consisting of: a flexible material, an injection moldable material, an elastomeric material, a thermoformed plastic, a thermoformed foam, and/or a thermoformed elastomer.

16. The muscle exercising device according to claim **1**, wherein the material of construction is one or more of the group consisting of: polyvinyl chloride, polyurethane foam, ethylene vinyl acetate foam, rubber, silicone, neoprene, woven materials, non-woven materials, and/or mesh materials.

17. The muscle exercising device according to claim **1**, wherein the upper exterior surface comprises a textured surface, wherein the textured surface is configured to be engaged by the user; or wherein the lower exterior surface comprises the textured surface.

18. The muscle exercising device according to claim **1**, wherein the upper exterior surface comprises a first region for displaying a first graphic, wherein the first graphic is viewable by the user; or wherein the lower exterior surface comprises a second region for displaying a second graphic, wherein the second graphic is viewable by the user.

19. A muscle exercising device, comprising:

a five pronged star shaped member; wherein the five pronged star shaped member comprises an upper exterior surface and a lower exterior surface disposed opposite of the upper exterior surface; wherein the five pronged star shaped member comprises five separate prongs radially oriented from each other, such that each prong directly opposes a side indenture of the five pronged star shaped member, and each pair of adjacent prongs are separated from each other by one side indenture;

wherein the five pronged star shaped member comprises a resilient property; wherein the resilient property is derived from one or more of a material of construction of the five pronged star shaped member and/or a gas exerting pressure upon interior surfaces of the upper exterior surface and the lower exterior surface;

wherein the five pronged star shaped member is configured to be engaged by a first location on a user's body; and wherein the five pronged star shaped member is also configured to be engaged by a second, different, location on the user's body;

wherein when the user exerts a compression force by squeezing the first location towards the second location, the user's muscles between the first location and the second location are exercised as the resilient property resists the compression force.

20. A method for manufacturing a muscle exercising device, comprising a step of injection molding an upper exterior surface and a lower exterior surface disposed opposite of the upper exterior surface such that the upper exterior surface and the lower exterior surface are joined to each other along a single continuous seam; wherein the upper exterior surface and the lower exterior surface joined together form a member;

wherein the member comprises a resilient property; wherein the resilient property is derived from one or more of a material of construction of the member and/or a gas exerting pressure upon interior surfaces of the upper exterior surface and the lower exterior surface;

wherein the member is configured to be engaged by a first location on a user's body; and wherein the member is also configured to be engaged by a second, different, location on the user's body;

wherein when the user exerts a compression force by squeezing the first location towards the second location, the user's muscles between the first location and the second location are exercised as the resilient property resists the compression force.

* * * * *