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Herron

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(54) **EXERCISE SUIT WITH INTEGRATED WEIGHTS**

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A61B 5/6801; A61B 5/7405; A61B
5/742; A61B 5/746; A61B 2560/0487

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See application file for complete search history.

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(56) **References Cited**

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U.S. PATENT DOCUMENTS

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A61B 5/024 (2006.01)

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

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(2013.01); **A61B 5/6801** (2013.01); **A61B**
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(2013.01); **A61B 2560/0487** (2013.01); **A63B**
2220/62 (2013.01); **A63B 2230/04** (2013.01)

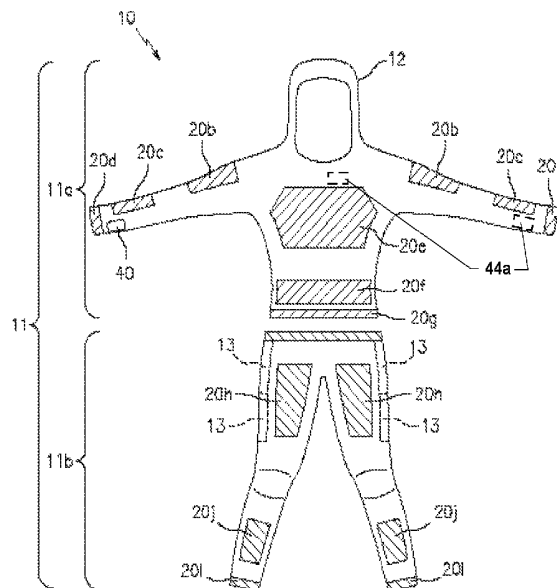
(58) **Field of Classification Search**

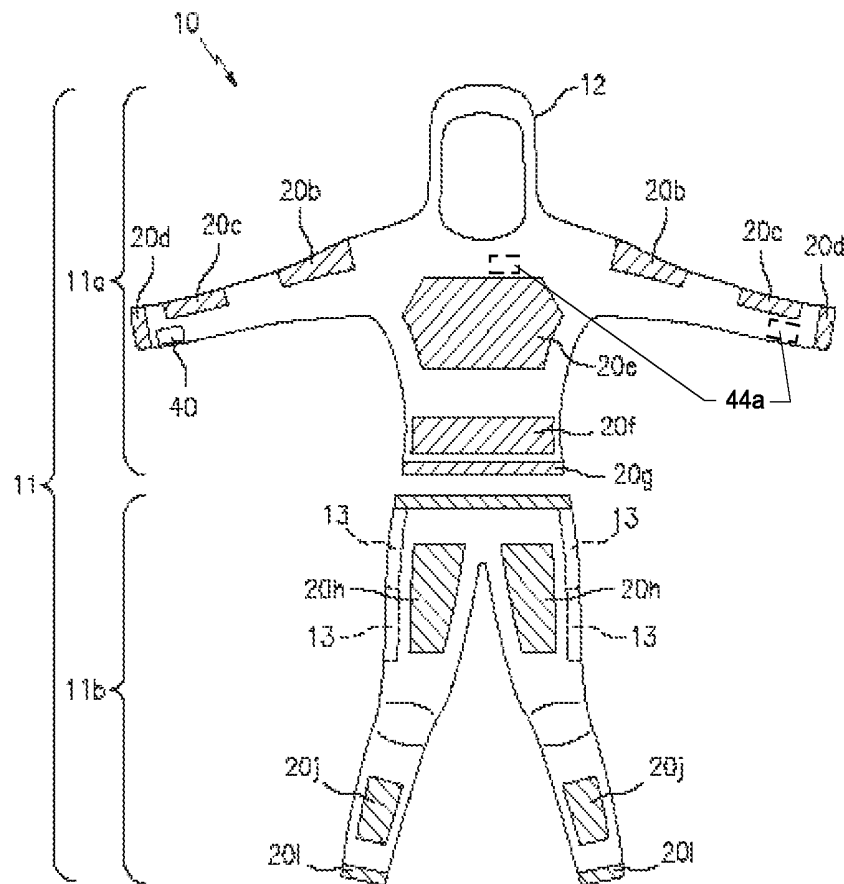
CPC A63B 21/065; A63B 21/0603; A63B

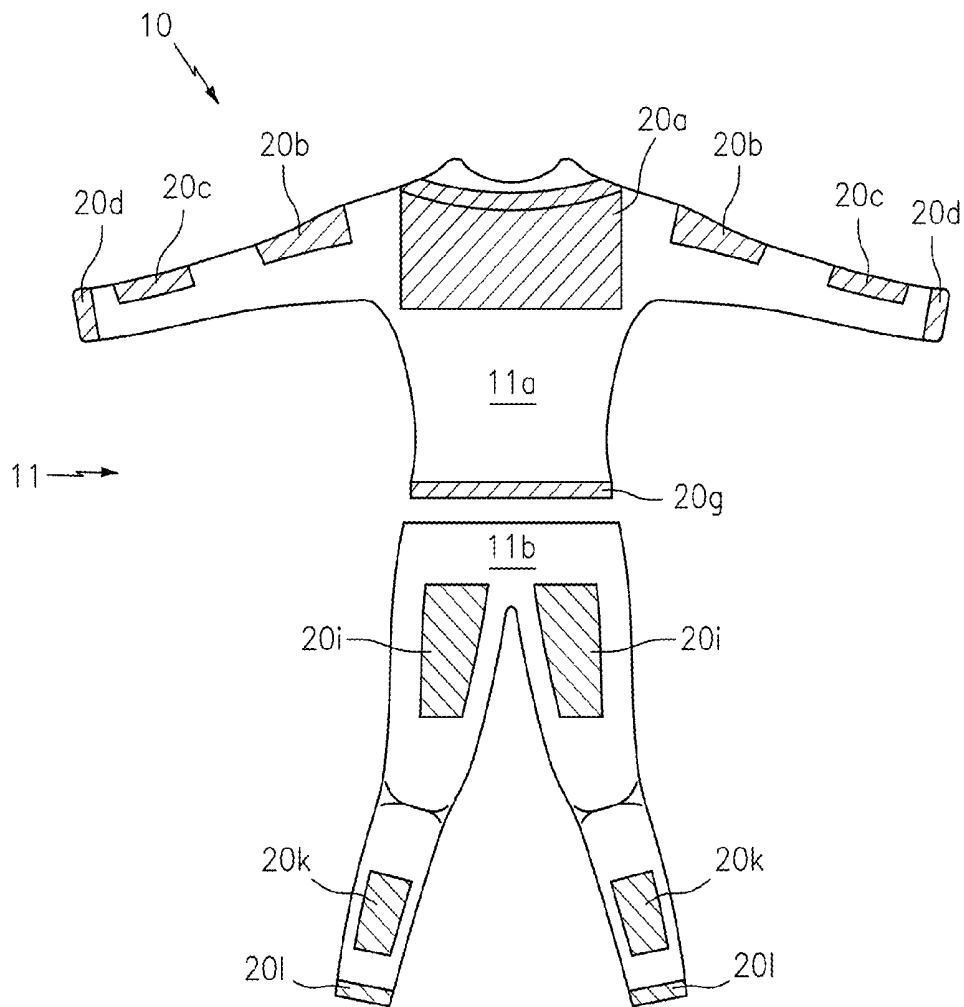
(57) **ABSTRACT**

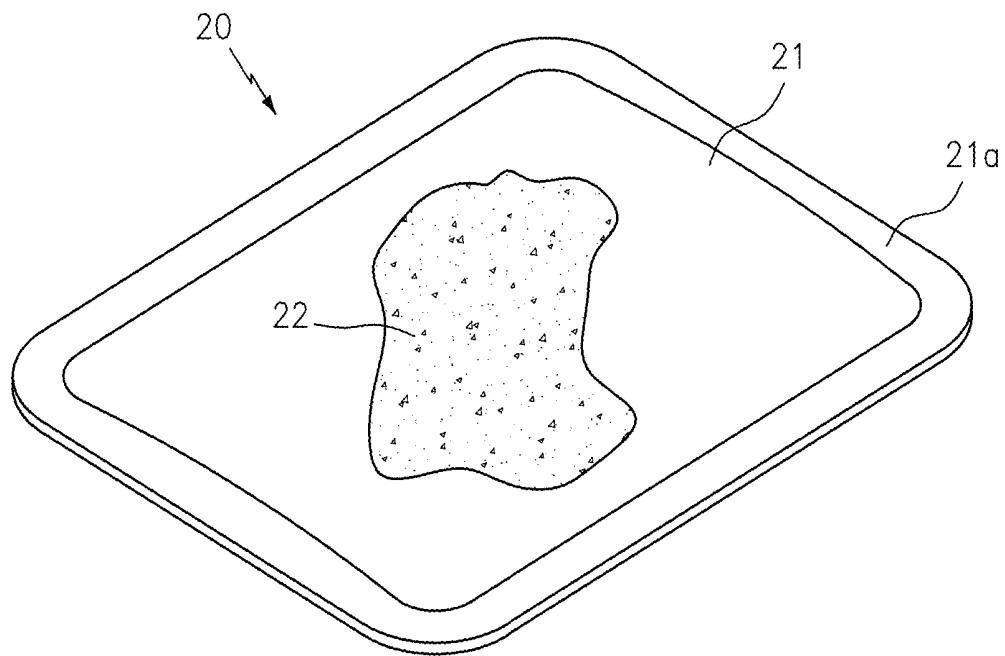
An exercise suit with integrated weights includes a shirt portion and a pants portion that are constructed from a lightweight elastomeric material. A plurality of soft weights are disposed along the shirt and pants portions at locations adjacent to the major muscle groups of the suit wearer. Each of the weights can be permanently secured along the inside facing surface of the shirt and pants, and conform to the shape and movement of the suit wearer. The suit also includes a fitness monitor having a heartbeat sensor, timer and display.

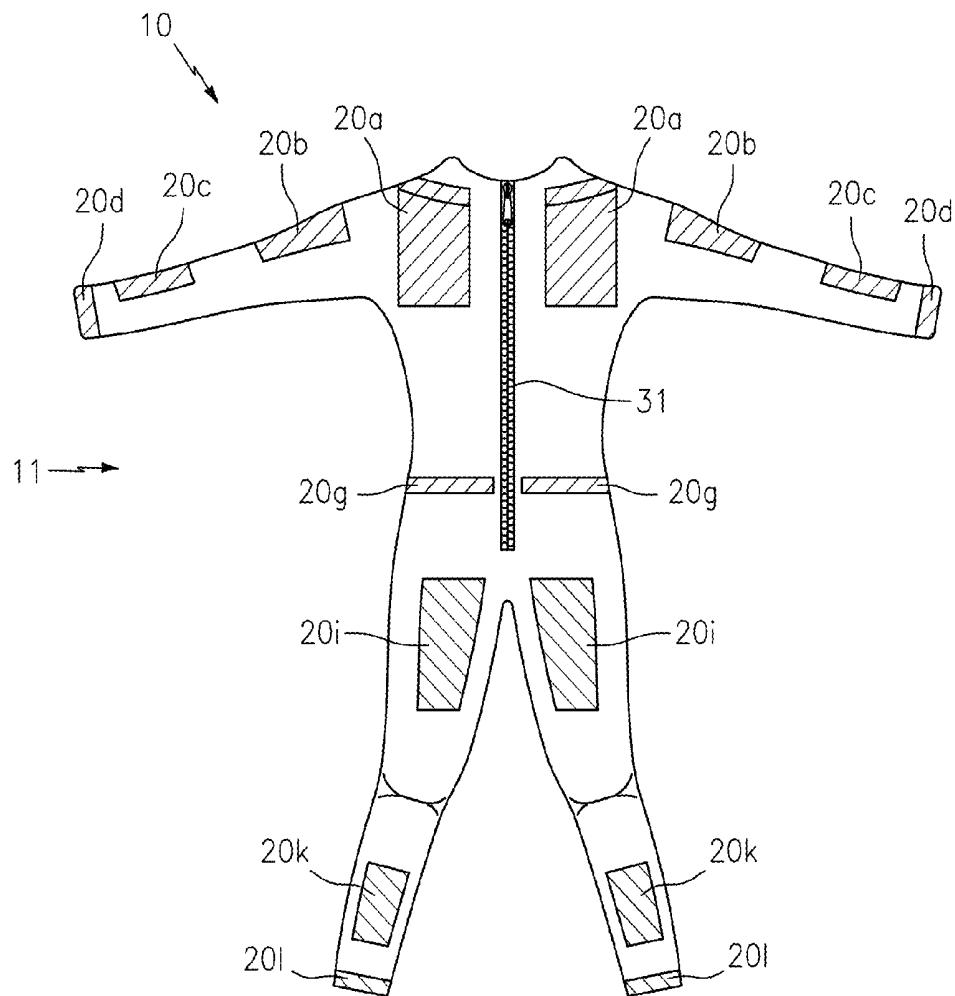
11 Claims, 8 Drawing Sheets



**FIG. 1A**

*FIG. 1B*

*FIG. 2*

*FIG. 3A*

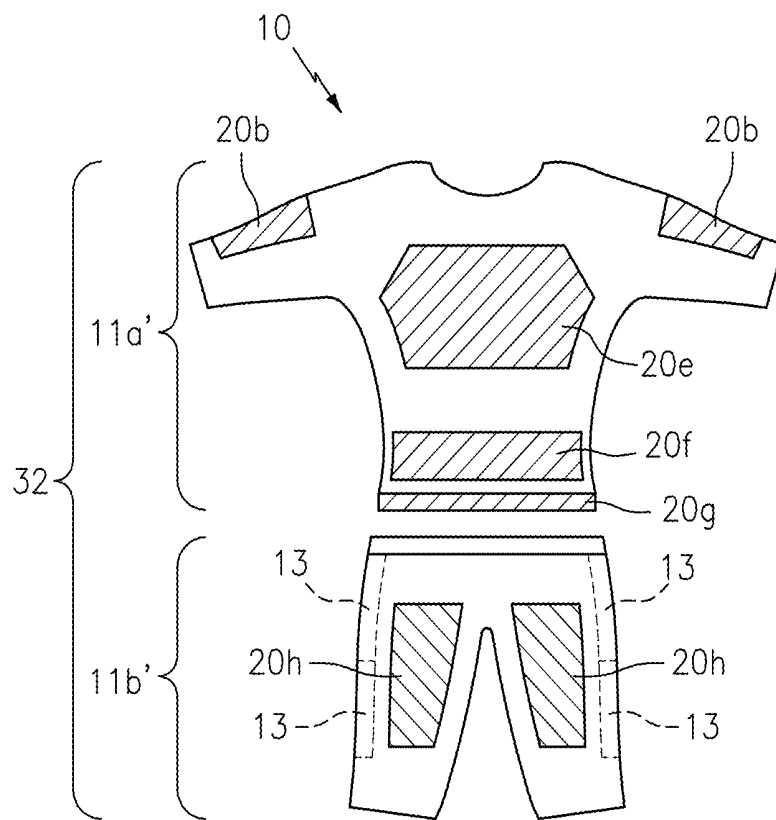
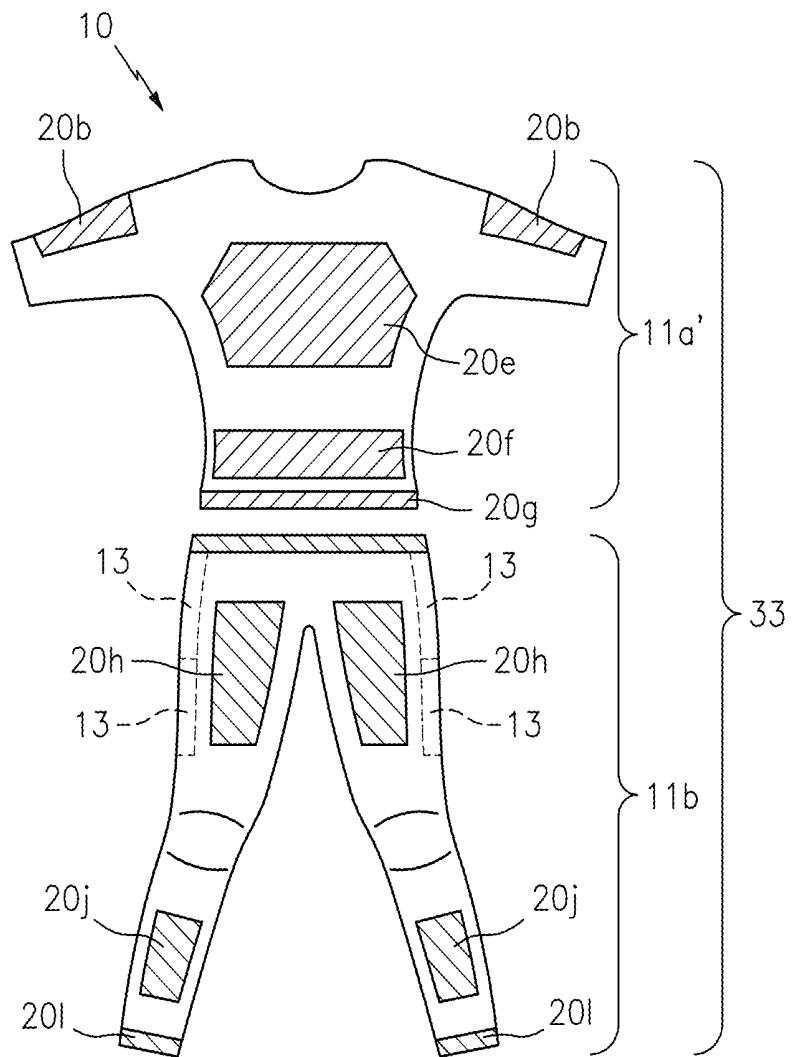


FIG. 3B

*FIG. 3C*

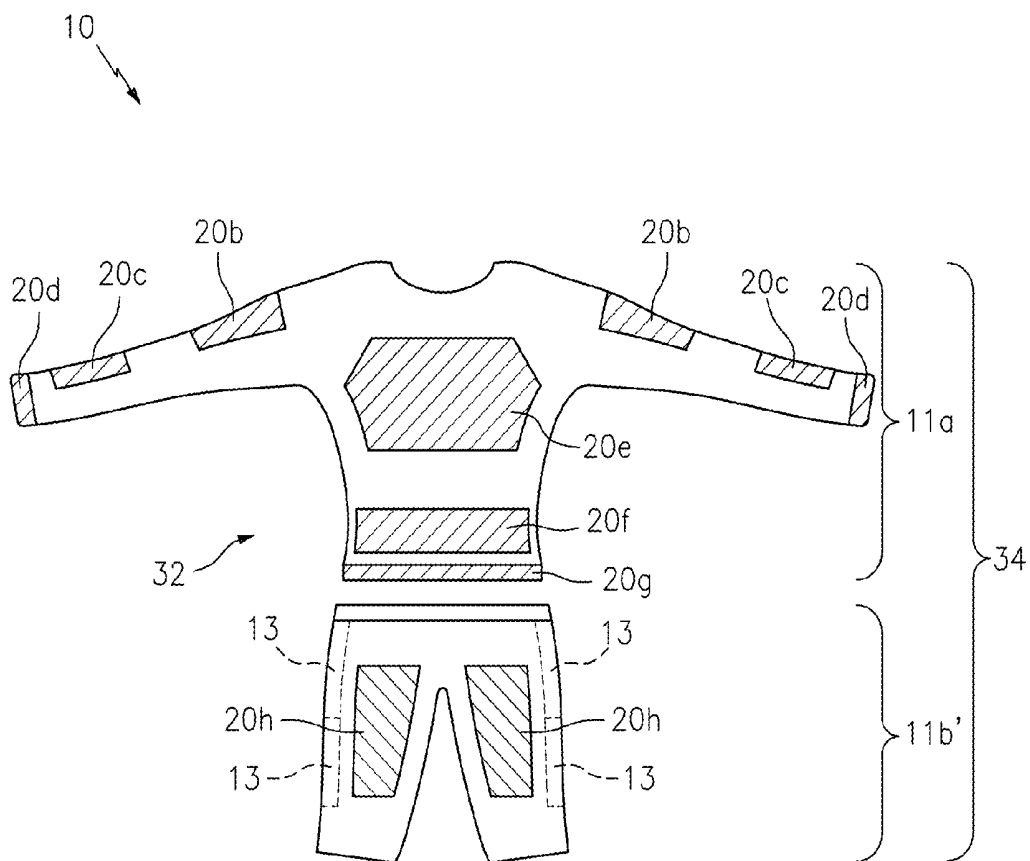


FIG. 3D

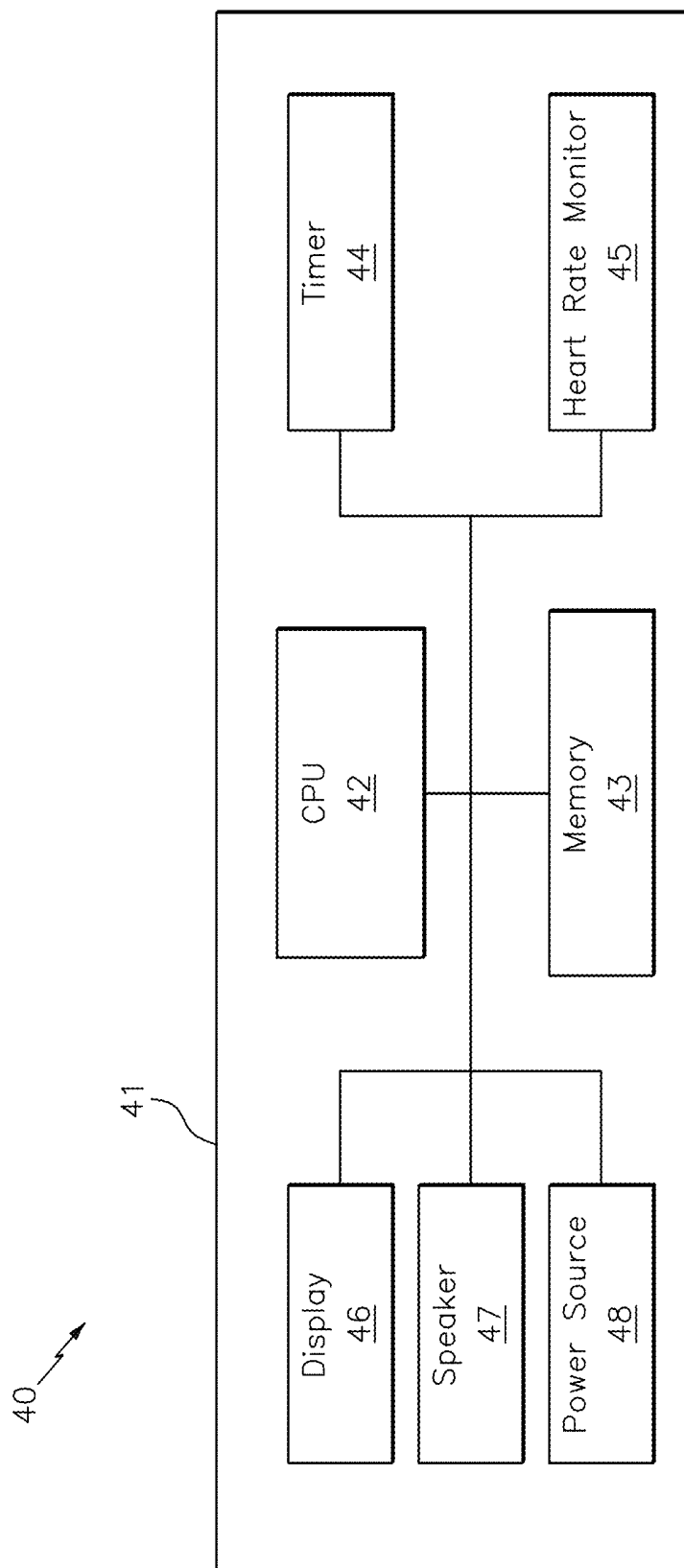


FIG. 4

1

EXERCISE SUIT WITH INTEGRATED WEIGHTS

TECHNICAL FIELD

The present invention relates generally to the field of physical fitness, and more particularly to exercise garments having integrated weights.

BACKGROUND

The statements in this section merely provide background information related to the present disclosure and may not constitute prior art.

Proper diet and regular exercise are among the best ways to ensure a long and healthy life. As such, there are thousands of fitness centers across the country that assist members in performing various forms of exercise such as running, cycling, aerobics, sports, weight training and swimming, for example.

To this end, the predominant type of exercise equipment found in any fitness center and/or home gym typically includes some type of weightlifting and/or resistance training system. When performing weight training, users stress their muscles which, over time, cause the body to increase the overall muscle content to accommodate the users demand. Additionally, higher level athletes often combine this weight training with other forms of exercise such as aerobics, for example. To this end, many athletes routinely utilize ankle weights, wrist weights and other such devices while running as a means to increase the intensity of the aerobic workout.

Although useful, these forms of wearable weights have heretofore been limited to bulky items that must be strapped onto the arms and/or legs of the user, thereby reducing the ability of the user to perform other tasks. Moreover, although there have been attempts to introduce whole-body suits containing externally located weights, these devices also suffer from many drawbacks, as the weights are typically large rigid members that do not flex with the movements of the user and often make inadvertent contact with external objects causing damage to the same.

Accordingly, it would be beneficial to provide weighted exercise garments that incorporate a plurality of strategically located weights within the body of the garment in a manner that allows a user to experience a full body workout while performing any type of activity, and without suffering from the drawbacks of the above noted devices.

SUMMARY OF THE INVENTION

The present invention is directed to an exercise suit with integrated weights. One embodiment of the present invention can include a shirt portion and a pants portion that are constructed from a lightweight elastomeric material which can be worn as an outer garment or as an undergarment. A plurality of soft weights can be disposed along each of the shirt and pants at locations adjacent to the major muscle groups of the suit wearer.

In one embodiment, the weights can be permanently secured along the inside facing surface of the shirt and pants, and are configured to conform to the shape and movement of the suit wearer. Another embodiment of the present invention can include a fitness monitor which can be integrated into the suit and can function to detect the heartbeat of the suit wearer.

2

This summary is provided merely to introduce certain concepts and not to identify key or essential features of the claimed subject matter.

BRIEF DESCRIPTION OF THE DRAWINGS

Presently preferred embodiments are shown in the drawings. It should be appreciated, however, that the invention is not limited to the precise arrangements and instrumentalities shown.

FIG. 1A is a front side view of an exercise suit with integrated weights that is useful for understanding the inventive concepts disclosed herein.

FIG. 1B is a back side view of an exercise suit with integrated weights, in accordance with one embodiment of the invention.

FIG. 2 is a perspective view of an exemplary weight, in accordance with one embodiment of the invention.

FIG. 3A is a back side view of the exercise suit with integrated weights, in accordance with another embodiment of the invention.

FIG. 3B is a front side view of the exercise suit with integrated weights, in accordance with another embodiment of the invention.

FIG. 3C is another front side view of the exercise suit with integrated weights, in accordance with another embodiment of the invention.

FIG. 3D is another front side view of the exercise suit with integrated weights, in accordance with another embodiment of the invention.

FIG. 4 is a schematic diagram of the fitness monitor of the exercise suit with integrated weights, in accordance with one embodiment of the invention.

DETAILED DESCRIPTION OF THE INVENTION

While the specification concludes with claims defining the features of the invention that are regarded as novel, it is believed that the invention will be better understood from a consideration of the description in conjunction with the drawings. As required, detailed embodiments of the present invention are disclosed herein; however, it is to be understood that the disclosed embodiments are merely exemplary of the invention which can be embodied in various forms. Therefore, specific structural and functional details disclosed herein are not to be interpreted as limiting, but merely as a basis for the claims and as a representative basis for teaching one skilled in the art to variously employ the inventive arrangements in virtually any appropriately detailed structure. Further, the terms and phrases used herein are not intended to be limiting but rather to provide an understandable description of the invention.

Identical reference numerals are used for like elements of the invention or elements of like function. For the sake of clarity, only those reference numerals are shown in the individual figures which are necessary for the description of the respective figure. For purposes of this description, the terms "upper," "bottom," "right," "left," "front," "vertical," "horizontal," and derivatives thereof shall relate to the invention as oriented in FIG. 1A.

FIGS. 1A and 1B illustrate front and back side views of one embodiment of an exercise suit with integrated weights 10 that are useful for understanding the inventive concepts disclosed herein. As shown, the suit 10 can include a shirt member 11a, and a pants member 11b, referred to hereinafter collectively as 11, that are embedded with a plurality of

internally located weights **20**. In various embodiments, a fitness monitor **40** can be embedded within the suit to monitor the health and activities of the wearer.

In the present embodiment, the main body **11** also includes a hood portion **12** that is secured along the neckline of the shirt and functions to cover the head of the user. Additionally, a plurality of pockets **13** are disposed along the inside surface of the legs of the pants member **11b**. Each of these pockets can function to receive additional weights **20** at the discretion of the user.

The main body **11** can be preferably constructed from a generally lightweight, breathable and elastomeric material such as spandex, for example. Construction of the clothing from such a material ensures a tight fitting garment against the skin of the wearer, and prevents movement of the same when the user perspires. Moreover, such materials include excellent tensile strength, and are extremely thin, thereby allowing the suit **10** to be worn as an undergarment beneath clothing such as traditional shorts or shirts, for example. Of course, any number of other materials including wicking fabrics such as high tech polyester, for example, that actively draws moisture and odors away from the body are also contemplated.

As shown, a plurality of weights referred to collectively at **20** can be secured along the inside facing surface of the main body **11** at specific locations to maximize the major muscle groups of the users' body. In the preferred embodiment, the shirt member **11a** of the suit **10** can include an upper back/shoulder weight **20a**, bicep weights **20b**, triceps weights **20c**, wrist weights **20d**, a chest weight **20e** (males only), an abdomen weight **20f** and a waist weight **20g**. Likewise, the pants member **11b** of the suit **10** can include front thigh weights **20h**, rear thigh weights **20i**, front calf weights **20j**, rear calf weights **20k** and ankle weights **20l**.

Although described above with respect to particular weights at designated locations, this is for illustrative purposes only, as such, other embodiments are contemplated where additional weights are included at other locations and/or not all of the above described weights are included within a particular suit.

In one exemplary embodiment, the suit **10** can be configured to apply a total weight of 100 pounds onto the major muscle groups of a user. As such, Table 1 outlines one possible distribution of the weights that would be suitable for an adult male athlete.

TABLE 1

Location of weight(s)	number of weights	individual weight (lbs)	combined weight (lbs)
20d-wrists	2	1.25	2.5
20c-triceps	2	2.5	5
20b-biceps	2	2.5	5
20a-back	1	10	10
20e-chest	1	10	10
20f-abdomen	1	10	10
20g-waist	1	5	5
20h-front thigh	2	5	10
20i-rear thigh	2	5	10
20j-shin	2	2.5	5
20k-rear calf	2	2.5	5
20l-ankle	2	1.25	2.5
13-pocket	4	5	20
			Total weight 100

Of course, the overall weight of the suit **10** and/or the specific weight of each element **20** can vary based on the fitness level, age, size and/or gender of the anticipated user

of the suit. As such, suits employing a total weight of between 20 pounds and 200 pounds are fully contemplated.

FIG. 2 illustrates one embodiment of one of the weights **20** that can be integrated into the suit **10**. As shown, the weight **20** can preferably include a non-rigid, malleable member comprising a strong polyester or nylon bag **21** that is filled with sand, graphite beads, and/or other such weighted elements **22**, for example.

As shown, the bag can include edging **21a** along the outer periphery so as to allow the weights to be permanently affixed to the fabric of the main body **11**. As described herein, any number of suitable materials and methodologies can be utilized to secure the weights to the identified portions of the suit body. Several nonlimiting examples include permanent sealers such as glue, adhesive tape, or commercial grade nylon stitching, for example.

The inclusion of malleable weights **20** allows the shape of each weight to conform to the body of the user and also will not cause damage to external items if contact is made. For example, if a user is wearing the exercise suit **10** beneath clothing such as a business suit, for example, the thin main body material **11** combined with the resilient nature of the weights **20** will not present a visible indication that the suit **10** is being worn as an undergarment. Moreover, while the user is performing routine tasks such as reaching for a glass of water, for example, accidental contact between the wrist weight **20d**, and the fragile glass will not cause the same to shatter, owing to the resilient nature of the weight **20**.

Accordingly, the above described suit **10** functions to allow a user to exercise the major muscle groups of their body at all times in a novel manner that does not affect other day to day activities.

Although described above with respect to separate elements **11a** and **11b**, other embodiments are also contemplated. To this end, FIG. 3A illustrates another embodiment of the suit **10** having a main body **11'** wherein the shirt and pants members **11a** and **11b** include a unitary construction. As shown, a zipper **31** or other such mechanism can also be provided to facilitating entry by a user.

Of course, the main body is not to be construed as limiting to long sleeve shirt and full length pants, as any combination of these elements are also contemplated. To this end, FIG. 3B illustrates another embodiment of the suit **10** that further includes main body **32** having a short sleeve shirt member **11a'** and short pants member **11b'**. FIG. 3C illustrates another embodiment of the suit **10** that further includes main body **33** having a short sleeve shirt member **11a'** and long pants member **11b**. FIG. 3D illustrates another embodiment of the suit **10** that further includes main body **34** having a long sleeve shirt member **11a** and short pants member **11b'**.

In either instance, the suit **10** can be manufactured to fit men, women and children of any shape or size, and can include an unlimited number of decorative elements such as various colors, markings, words, shapes, symbols, logos, designs, texturing of materials, patterns, and/or images, for example. These elements can be secured onto and/or into the main body in accordance with known techniques so as to be flush with the surface of the main body or can be recessed, raised and/or protruding outward from the main body so as to give a three dimensional effect.

FIG. 4 is a simplistic schematic diagram of the fitness monitor **40**, which can be provided with the suit **10**. In one embodiment, the fitness monitor **40** can include an outer shell/body **41** having a processor **42** that is conventionally connected to an internal memory **43**, a timer module **44**, a heart rate monitor **45**, a display **46**, a speaker **47**, and a power source **48**.

Although illustrated as separate elements, those of skill in the art will recognize that one or more system components may be, or include one or more printed circuit boards (PCB) containing an integrated circuit or circuits for completing the activities described herein. The CPU may be one or more integrated circuits having firmware for causing the circuitry to complete the activities described herein. Of course, any number of other components capable of performing the below described functionality can be provided in place of, or in conjunction with the below described controller elements.

The main body **41** can house each of the elements in a conventional manner, so as to create a single device. In this regard, the main body **41** can preferably be constructed from a thin waterproof material such as lightweight plastic, for example, which can be sewn within the fabric of the suit **10**, or removably secured thereon via a tether or other such connector.

The processor/CPU **42** can act to execute program code stored in the memory **43** in order to allow the device to perform the functionality described herein. Likewise, a timer module **44** can be provided, and can function to accurately measure the passage of time. As described herein, the timer module can be provided as a function of the processor or can include a separate physical circuit. In either instance, processors and timers are extremely well known in the art, therefore no further description will be provided.

Memory **43** can act to store operating instructions in the form of program code for the processor **42** to execute. Although illustrated in FIG. **4** as a single component, memory **43** can include one or more physical memory devices such as, for example, local memory and/or one or more bulk storage devices. Additionally, memory **43** can also include one or more cache memories that provide temporary storage of at least some program code in order to reduce the number of times program code must be retrieved from the bulk storage device during execution. Each of these devices is well known in the art.

The Heart Rate Monitor **44** can include a sensor **44a** that is in contact with the user's skin at a location that is suitable for detecting the heart rate of the user (e.g., the wrist or chest). When activated, the sensor can detect the user's heart rate, and can send the same to the display unit **46**, which can provide the detected heart rate in terms of beats per minute. To this end, the processor can also trigger the speaker to sound an alert in the event that the detected heart rate is above or beneath a user defined threshold.

The visual display unit **46** can include virtually any type of known device capable of presenting information in a digital format to a user via a screen. Several nonlimiting examples include LCD displays, plasma, LED displays, electro-luminescent displays and the like. Additionally, the display unit **46** can also include a Graphic User Interface (GUI) capable of performing two way communication with a device user.

The speaker **47** can function in a conventional manner to play an audible sound such as an alarm tone or a pre-recorded message upon being activated by the processor.

In one preferred embodiment, the power source **48** can include one or more DC batteries capable of providing the necessary power requirements to each element of the device **10**. The batteries can be permanently located within the main body and can be rechargeable in nature via a charging port such as a mini or micro USB port, for example. Of course, traditional batteries can also be utilized and the main body can further include a battery compartment having a removable cover (not illustrated) for allowing a user to access the same.

In operation, a user can wear the suit during any activity to increase muscle and achieve a greater fitness level. Moreover, the integrated fitness monitor can help the user to achieve their goals, while providing health and safety information to the user at all times.

As to a further description of the manner and use of the present invention, the same should be apparent from the above description. Accordingly, no further discussion relating to the manner of usage and operation will be provided.

The terminology used herein is for the purpose of describing particular embodiments only and is not intended to be limiting of the invention. As used herein, the singular forms "a," "an," and "the" are intended to include the plural forms as well, unless the context clearly indicates otherwise. It will be further understood that the terms "comprises" and/or "comprising," when used in this specification, specify the presence of stated features, integers, steps, operations, elements, and/or components, but do not preclude the presence or addition of one or more other features, integers, steps, operations, elements, components, and/or groups thereof.

The corresponding structures, materials, acts, and equivalents of all means or step plus function elements in the claims below are intended to include any structure, material, or act for performing the function in combination with other claimed elements as specifically claimed. The description of the present invention has been presented for purposes of illustration and description, but is not intended to be exhaustive or limited to the invention in the form disclosed. Many modifications and variations will be apparent to those of ordinary skill in the art without departing from the scope and spirit of the invention. The embodiment was chosen and described in order to best explain the principles of the invention and the practical application, and to enable others of ordinary skill in the art to understand the invention for various embodiments with various modifications as are suited to the particular use contemplated.

What is claimed is:

1. An exercise suit, comprising:

a shirt member that is constructed from a single layer of breathable elastomeric material, said shirt member having an inside facing surface an outside facing surface, and a pair of sleeves;

a pants member having an inside facing surface, an outside facing surface and is constructed from a lightweight breathable and elastomeric material;

an electronic fitness monitor that is permanently secured onto the shirt member; and

a plurality of malleable weights, each weight comprising a fill material having a specific weight,

a discrete bag having a surface area that encompasses the fill material, and

an edging material that is positioned along an outside periphery of the bag, said edging material being sewn directly to the inside facing surface of one of the shirt member and the pants member,

wherein each of the plurality of malleable weights includes a specific shape and size that is configured to conform to a shape and size of a major muscle group of a human body,

said plurality of malleable weights comprising

a single upper back/shoulder weight that is disposed horizontally along a top portion of the shirt member along a back facing side and extending between the pair of sleeves,

a single chest weight that is disposed horizontally along a top portion of the shirt member along a front facing side and extending between the pair of sleeves,

7

a single abdomen weight that is disposed horizontally along a middle portion of the shirt member and extending between a pair of sides of the shirt member,

a single waist weight that is disposed horizontally along an entirety of a bottom end of the shirt member, and a pair of front thigh weights and a pair of rear thigh weights that are disposed along the pants member.

2. The exercise suit of claim 1, wherein the shirt member includes long sleeves, and further comprises a pair of bicep weights, a pair of triceps weights and a pair of wrist weights that are each disposed along an inside facing surface thereof.

3. The exercise suit of claim 1, wherein the pants member includes long sleeves, and further comprises a pair of front calf weights, a pair of rear calf weights and a pair of ankle weights that are each disposed along an inside facing surface thereof.

4. The exercise suit of claim 1, wherein the plurality of weights include a total weight of between 20 and 200 pounds.

5. The exercise suit of claim 1, wherein the shirt member and the pants member are permanently joined together, and further includes a zipper that is disposed along a back end thereof.

6. The exercise suit of claim 1 wherein the electronic fitness monitor further comprises:

a heart rate monitor having a sensor that is positioned along one of the wrist and chest of the suit, said monitor being configured to engage a user's skin to detect a heart rate of the suit user;

a timer that is configured to measure the passage of time; and

a display that is configured to show a detected heart rate and a clock.

7. The exercise suit of claim 6, further comprising:

a waterproof main body that is permanently secured to the shirt member, said main body housing the timer and display;

a speaker that is positioned within the waterproof housing;

a memory that is positioned within the waterproof housing; and

a processor that is positioned within the waterproof housing, said processor being in communication with each of the memory, speaker, display, timer and heart rate monitor,

wherein the electronic fitness monitor includes functionality for generating an audible alarm upon detecting that the detected heart rate of the suit user is above a predetermined threshold.

8

8. The exercise suit of claim 1, wherein the single upper back/shoulder weight is ten pounds.

9. The exercise suit of claim 1, wherein the single chest weight includes a shape and dimension that is configured to cover an entirety of a suit wearers pictorial muscles.

10. The exercise suit of claim 1, wherein the single chest weight is ten pounds.

11. An exercise suit, consisting of:

a shirt member that is constructed from a single layer of breathable elastomeric material, said shirt member having an inside facing surface, an outside facing surface, and a pair of sleeves;

a pants member having an inside facing surface, an outside facing surface and is constructed from a lightweight breathable and elastomeric material;

an electronic fitness monitor that is permanently secured onto the shirt member; and

a plurality of malleable weights, each weight comprising a fill material having a specific weight,

a discrete bag having a surface area that encompasses the fill material, and

an edging material that is positioned along an outside periphery of the bag, said edging material being sewn directly to the inside facing surface of one of the shirt member and the pants member,

wherein each of the plurality of malleable weights includes a specific shape and size that is configured to conform to a shape and size of a major muscle group of a human body,

said plurality of malleable weights comprising

a single upper back/shoulder weight that is disposed horizontally along a top portion of the shirt member along a back facing side and extending between the pair of sleeves,

a single chest weight that is disposed horizontally along a top portion of the shirt member along a front facing side and extending between the pair of sleeves,

a single abdomen weight that is disposed horizontally along a middle portion of the shirt member and extending between a pair of sides of the shirt member,

a single waist weight that is disposed horizontally along an entirety of a bottom end of the shirt member, and

a pair of front thigh weights and a pair of rear thigh weights that are disposed along the pants member.

* * * * *

专利名称(译)	运动套装与综合重量		
公开(公告)号	US10065065	公开(公告)日	2018-09-04
申请号	US15/136338	申请日	2016-04-22
[标]申请(专利权)人(译)	赫伦DERRICK		
申请(专利权)人(译)	赫伦, DERRICK		
当前申请(专利权)人(译)	赫伦, DERRICK		
[标]发明人	HERRON DERRICK		
发明人	HERRON, DERRICK		
IPC分类号	A61B5/02 A63B21/065 A61B5/024 A61B5/00 A63B21/06		
CPC分类号	A63B21/065 A61B5/02438 A61B5/6801 A61B5/742 A61B5/746 A63B21/0603 A61B5/7405 A63B2230/04 A61B2560/0487 A63B2220/62		
其他公开文献	US20170304670A1		
外部链接	Espacenet		

摘要(译)

具有整体重物的运动服包括衬衫部分和裤子部分，其由轻质弹性体材料构成。沿着衬衫和裤子部分在与穿着者的主要肌肉群相邻的位置处设置多个柔软的重物。每个重物可以沿着衬衫和裤子的面向内的表面永久地固定，并且符合穿着者的形状和运动。该套装还包括一个带有心跳传感器，计时器和显示器的健身监视器。

