United States Patent

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[72] Inventors **Andy C. Cane**
13900 Jones-Maltsberger Road;
Charles Santos, P.O. Box 32634, both of
San Antonio, Tex. 78216

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[54] **SPRING-BIASED ARM EXERCISING DEVICE**
7 Claims, 2 Drawing Figs.

[52] **U.S. Cl.** ..... **272/83 R,** 272/82
[51] **Int. Cl.** **A63b 21/00**
[50] **Field of Search** ..... 272/83 R, 82, 67, 79 R, 80, 81, 75

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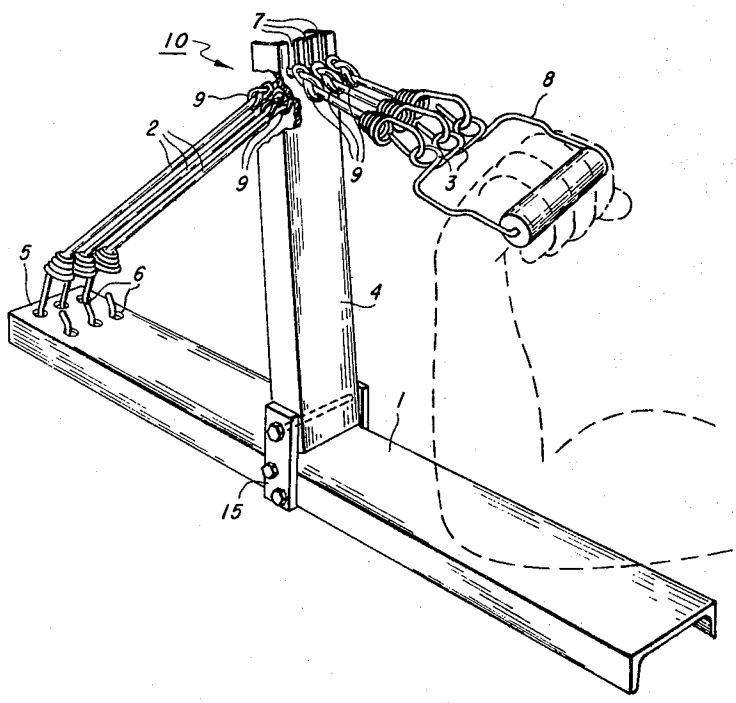
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Primary Examiner—Richard C. Pinkham
Assistant Examiner—William R. Browne
Attorney—Robert L. Eschenburg

ABSTRACT: An exerciser for strengthening a person's muscles having a swing arm connected to a base in a manner allowing the swing arm to pivot about its connection to the base when being operated. One or more tension strips are connected to the base with the tension strips connected to and extending through openings in the free end of the swing arm and then connected to a handle. The swing arm is connected to the tension strips intermediate the ends of the strips.



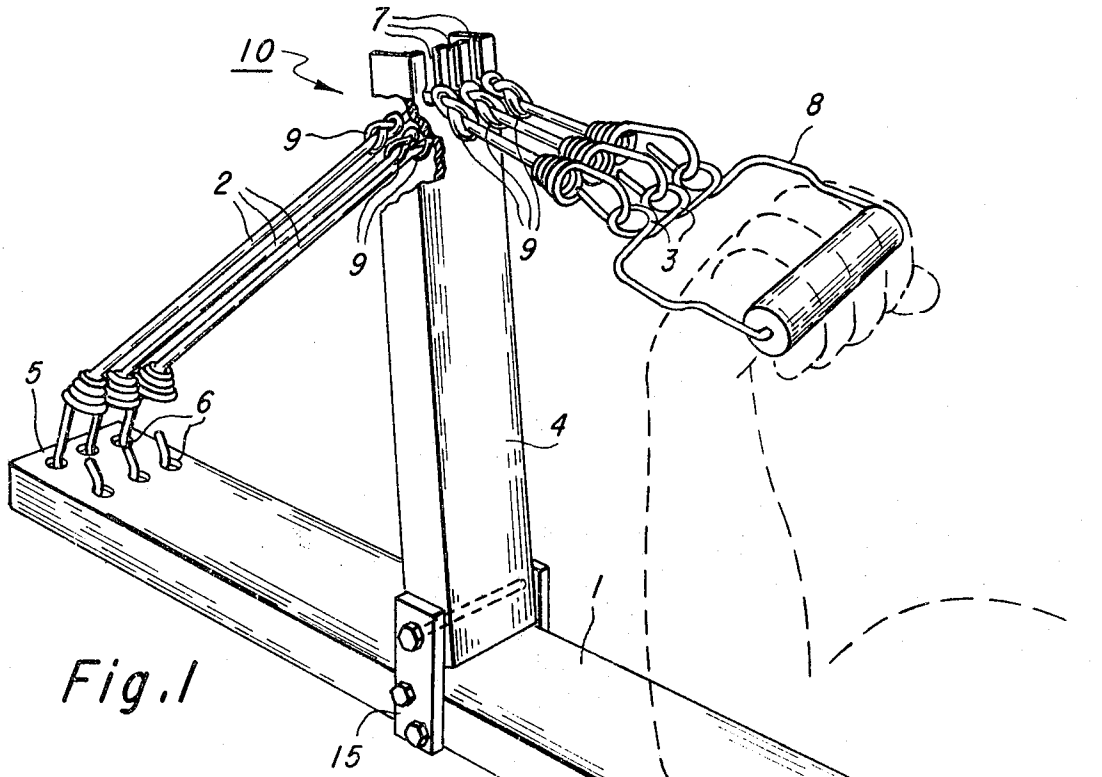


Fig. 1

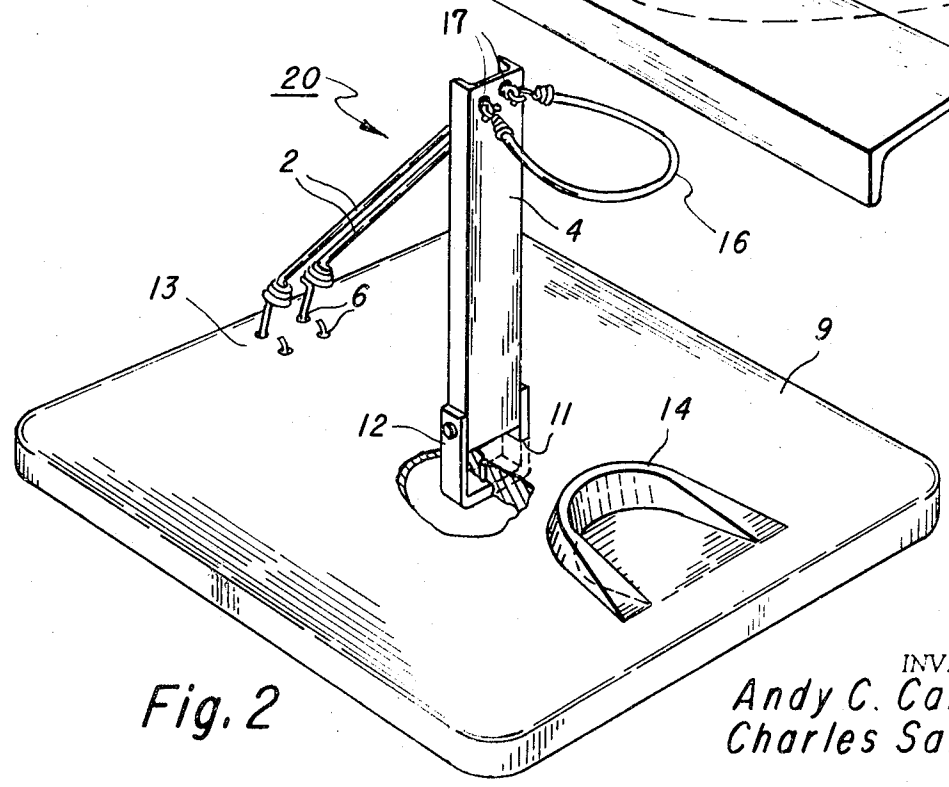


Fig. 2

INVENTORS
Andy C. Cane
Charles Santos

BY Robert S. Eschenburg II.
ATTORNEY

SPRING-BIASED ARM EXERCISING DEVICE

BACKGROUND OF THE INVENTION

1. Field of the Invention

This invention pertains to muscle exercisers that are used primarily for building strength and bulk of a person's arm, back, shoulder and neck muscles.

2. Description of the Prior Art

In the past, there have been a number of different types of muscle exercisers. One very common type is a set of springs with a handle connected to each end and which is operated by gripping both handles and pulling them apart. This type of exerciser has the drawback of requiring the use of both arms, in usually operated only while standing and exercises a different set of muscles, rather than the same set, as the arms spread further apart in using the hand exerciser. A similar type muscle exerciser has one handle removed, with that end being connected to a wall. The wall-connected exerciser is not self-contained and also requires the user to stand and requires a vertical surface as a connection point.

SUMMARY OF THE INVENTION

Briefly, the invention is a muscle exerciser which utilizes a base made of metal or wood, which will lay flat on a horizontal surface. An elongated swing arm, also made of metal or wood has one end connected to the top surface of the base so as to allow it to pivot about its connection when being operated. A number of openings penetrate completely through the free end or opposite end of the swing arm. One or more resisting or tension strips, such as springs or any other type of elastic material, are connected at one end to the base at a point spaced away from the connection point of the swing arm to the base with the opposite end of each tension strip being connected either to the swing arm itself and extended through the openings in the swing arm and connected to a nonstretch handle on the opposite side or each tension strip is connected to but does not extend through the swing arm with a handle, preferably one that will stretch, connected to the opposite side of the swing arm. To operate the exerciser, the operator places his elbow down on the top surface of the base at a point which is on the opposite side of the swing arm from the connection point of the tension strips to the base and pulls the handle towards himself, which in turn places the strips in tension. The swing arm pivots towards the operator as the handle is pulled towards him. After completing his pull, the handle is returned to its rest position. This cycle is repeated as many times as is desired. The self-contained exerciser can be used on any horizontal surface; is easily transported due to its compactness and light weight and can be operated while the user is sitting. The swing arm permits a continuous rear horizontal pull for any size arm, the angle of pull varying only slightly as the user operates the exerciser, thus, since the direction of pull stays nearly constant the same muscles are exercised during a single pull of the exerciser rather than exercising various muscles each time.

Therefore, an object of this invention is to provide a muscle exerciser that is light and self-contained and can be easily transported from place to place.

Another object of this invention is to provide a muscle exerciser that can be operated with the user in a sitting position.

Still another object of this invention is to provide a muscle exerciser that allows the user to strengthen one arm at a time.

A further object of this invention is to provide a muscle exerciser that is adaptable for all sizes of arms.

A still further object of this invention is to provide a muscle exerciser that furnishes an almost constant horizontal pull.

BRIEF DESCRIPTION OF THE DRAWING

The novel features believed characteristic of this invention are set forth in the appended claims. The invention itself, however, as well as its other objects and advantages thereof, may best be understood by reference to the following detailed description of illustrative embodiments read in conjunction with the accompanying drawing, wherein:

FIG. 1 is an pictorial view of the preferred embodiment of the present invention.

FIG. 2 is an pictorial view of an alternate embodiment of the present invention.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

Referring now to the drawing, which is not drawn to scale, the preferred embodiment of the exerciser constructed in accordance with the present invention is indicated generally by the reference numeral **10**, as shown in FIG. **1**. Like parts in the different figures are referred to by the same reference numerals. The arm exerciser **10**, comprises a base **1** made of any inflexible material, such as aluminum, steel, wood, fiberglass, or plastic, for example. The thickness of the base **1** will vary according to the material used, the only requirement being that the base **1** be thick enough so that it will not bend and be of light weight to facilitate its transport. For example, a metal base, such as steel or aluminum has less width than a wood, fiberglass, or plastic base. The width of the base **1** need only be enough to comfortably accommodate a person's arm. The length of the base **1** can vary, the minimum length being determined by the length of the elastic strips necessary to achieve the desirable amount of tension with sufficient space to accommodate an arm on the arm side of the base **1** and sufficient space to accommodate the length of swing arm on its side of the base **1**. The maximum length is determined by weight and convenience considerations.

For esthetic reasons, the swing arm **4** is typically the same width as the base **1** and is constructed of the same material as the base **1**. The depth of the swing arm **4** also varies according to the type of material used. Again, as in the case of the base **1**, if metal, such as aluminum or steel, is used, the swing arm **4** need not be as thick as in the case where wood, fiberglass, or plastic, for example, is used. The length of the swing arm **4** is determined by the average distance from the elbow to the palm of an average peson's hand.

The swing arm **4** is connected to the base **1** by any conventional manner, so that it will pivot back and forth only along a line between the connection point **5** of the tension strip **2** to the base **1** and through fixture **15** connecting the swing arm **4** to the base **1**. One way to pivotally connect the swing arm **4** to the base **1** is to bolt it to fixture **15** which in turn is connected by bolting it, for example, to the side of base **1**. The desired starting position or at-rest position of the swing arm **4** normally will be near vertical so that the operator will realize a continuous near horizontal pull. After use, the swing arm lies flat against the top surface of the base **1** for ease of transport.

One end of each of three tension strips **2** is connected to one end **5** of the base **1**. The preferred material for the tension strips **2** is plastic covered coiled springs. However, any type of elastic material, such as plastic or rubber, for example, works equally as well. The tension strips **2** are connected to the base **1** in any conventional manner, such as by being connected in turn to wires which extend through holes **6** in the base **1** and are bent back on themselves, as shown in FIG. **1**, for example, alternate techniques would be to use screws or eyebolts to attach the strips **2**.

The swing arm **4** has a number of openings **7** formed in the free end thereof, with one opening for each tension strip **2** to be used. Although, the openings **7** in the swing arm are shown in the form of slots, holes as in FIG. **2** can be used. Holes, however make the exerciser **10** more difficult to assemble and disassemble. Each tension strip **2** is connected to the swing of the base **1** opposite the end where the operator places his arm and on the same side as the tension strip attachment point **5**. The length of the tension strips **2** between the attachment point **5** and the swing arm **4** is such that the tension strips **2** are not in tension until the swing arm **4** is raised to somewhere near a vertical position as the handle **8** is pulled toward the operator. The tension strips **2** are then placed in tension causing the free end of the swing arm **4** to move towards the operator. He continues to pull the handle toward himself as far as he desires and then, without relaxing his grip on the handle, allows the

handle to return to its at-rest position. This cycle is repeated as many times as is desired and with either arm. The swing arm **4** is placed flat against the top surface of the base **1**, as mentioned before, for ease of transport.

The swing arm **4**, by its position, determines the height of the openings **7** above the top surface of the base **1**. Thus, operators with different length arms can adjust this height so as to always obtain a near horizontal pull. Also, as the operator pulls toward himself this horizontal pull varies only minimumly. If the swing arm **4** were to be eliminated, the pull would be directly from the attachment point **5**. Contra to the near constant horizontal pull obtained with the swing arm **4**, the angle of the pull of the tension strips **4** with the top surface of the base **1** would continually change which is not desired.

An alternate embodiment of this invention is shown in FIG. **2**. The exerciser **20** has a more or less square base **9**, as compared to the elongated base **1** of exerciser **10**. The base **9** is about the same thickness as the base **1** in FIG. **1**, but is somewhat heavier due to the increase in the amount of material. However, because of its extra width, the exerciser **20** is somewhat more stable than the exerciser **10** in a direction perpendicular to the pivotal direction of the swing arm **4**.

Two openings **11** penetrate completely through the base **9**. A "U"-shaped fixture **12** is inserted into the opening with the ends of the "U" extending above the top surface of the base **9**. The fixture **11** is secured to the base **9**. The fixture **11** is secured to the base **9** by a screw, for example, or by using any other conventional attachment. The swing arm **4** is then connected to the ends of the fixture **11** by a bolt for example, which extends through each end of the fixture **11** into the swing arm **4**, so that the swing arm **4** can pivot around the fixture **11**.

One end of each of the tension strips **2** is connected to the base **9** at the attachment point **13** by inserting that end of each of the tension strips **2** into openings **6** of the base **9**. However, any conventional connecting technique could be used such as eyebolts or screws. The opposite end of each of the tension strips **2** is connected to openings **17** shown as holes in this case, although slots work equally as well, in the swing arm **4**, the connection technique shown being similar to the technique used to connect the tension strips **2** to the base **9**. However, any conventional technique can be used. A stretch cord handle **16** is attached to the opposite side of the swing arm **4** from the tension strips **2**. The stretch cord handle **16** is also capable of being placed in tension so that in operating the exerciser **20**, the stretch cord handle **16** is used as part of the tension mechanism of the exerciser **20** in addition to acting as a handle.

An elbow stop **14** is shown attached to the top surface of the base **9** by any conventional method, such as by bolting it down or by using an adhesive. The elbow stop **14** prevents the user's arm from sliding along the surface of base **9** as the handle **16** is pulled. Although not shown, the elbow stop **14** can also be attached to the top surface of the base **1** of exerciser **10** for the same purpose. The exerciser **20** is utilized in exactly the same manner as was described in relationship to exerciser **10**. The stretch cord handle **16** is made of any elastic material, such as metal springs, plastic or rubber.

Although the preferred embodiment of the invention along with an alternate embodiment has been described in rather specific detail, it is to be understood that various changes, substitutions and alterations can be made therein without departing from the spirit and scope of the invention as defined by the appended claims.

What is claimed is:

1. An arm muscle exerciser, comprising:

1. a base;
2. a tension strip, having two ends and said strip being continuous and uninterrupted throughout its length and having one end connected to said base;
3. a handle connected to the other end of said tension strip; and,
4. an elongated swing arm means having one end pivotally connected to said base in a manner allowing said swing arm means to pivot only back and forth along a line between the connection of said tension strip to said base and through the connection of said swing arm means to said base, with the opposite end of said swing arm means connected to said tension strip a substantial distance from said two ends, whereby said exerciser is operated by pulling said handle in the direction toward the operator, thereby placing said tension strip in tension and causing said swing arm means to pivot toward the operator, and then releasing said tension strip to allow said swing arm means to return to its at-rest position.

2. The arm muscle exerciser, as defined in claim **1**, wherein said base has an elongated shape.

3. The arm muscle exerciser, as defined in claim **2**, including an elbow stop attached to the top surface of said base.

4. An arm muscle exerciser, comprising:

1. a base, having a surface sufficient for positioning a person's elbow thereon;
2. a tension strip, having two ends and said strip being continuous and uninterrupted throughout its length and having one end connected to said base at a point away from said elbow-positioning surface;
3. an elongated swing arm means, having one end pivotally connected to said base intermediate said elbow-positioning surface, and the connection of said tension strip to said base, in a manner allowing said swing arm means to pivot only back and forth along a line between the connection of said tension strip to said base and through the connection of said swing arm means to said base, with the opposite end of said swing arm means connected to said tension strip a substantial distance from said two ends; and,
4. a handle connected to said opposite end of said swing arm means whereby said exerciser is operated by placing an elbow on said elbow positioning surface, pulling on said handle in the direction toward an operator, thereby placing said tension strip in tension and causing said swing arm means to pivot toward an operator and then releasing said tension strip to allow said swing arm means to return to its at-rest position.

5. The muscle exerciser, as defined in claim **4**, wherein said base has an elongated shape.

6. The muscle exerciser, as defined in claim **5**, including an elbow stop attached to the top surface of said base.

7. The muscle exerciser, as defined in claim **4**, wherein said handle is made of elastic material.

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