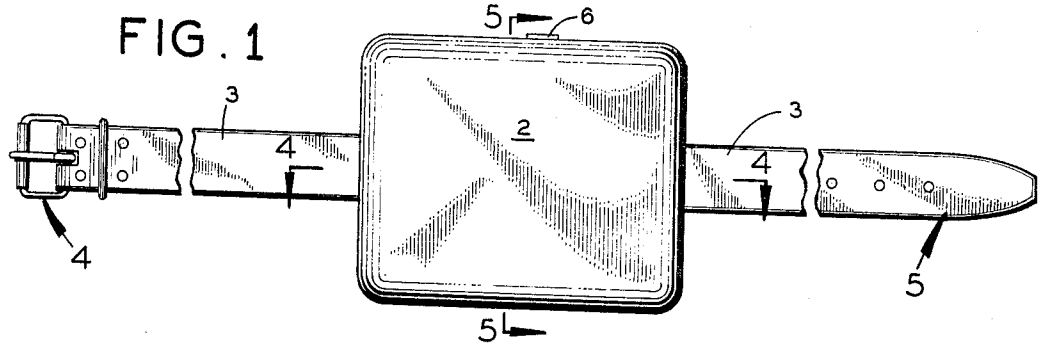
Oct. 11, 1966 J. L. BIDOPIA ETAL 3,278,185

BODY-ATTACHED ABDOMINAL EXERCISE DEVICE

Filed Sept. 24, 1963

2 Sheets-Sheet 1

FIG. 1



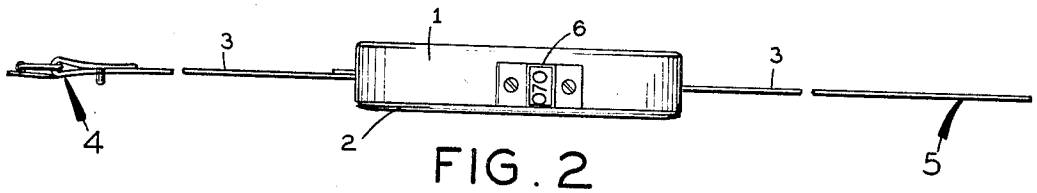


FIG. 2

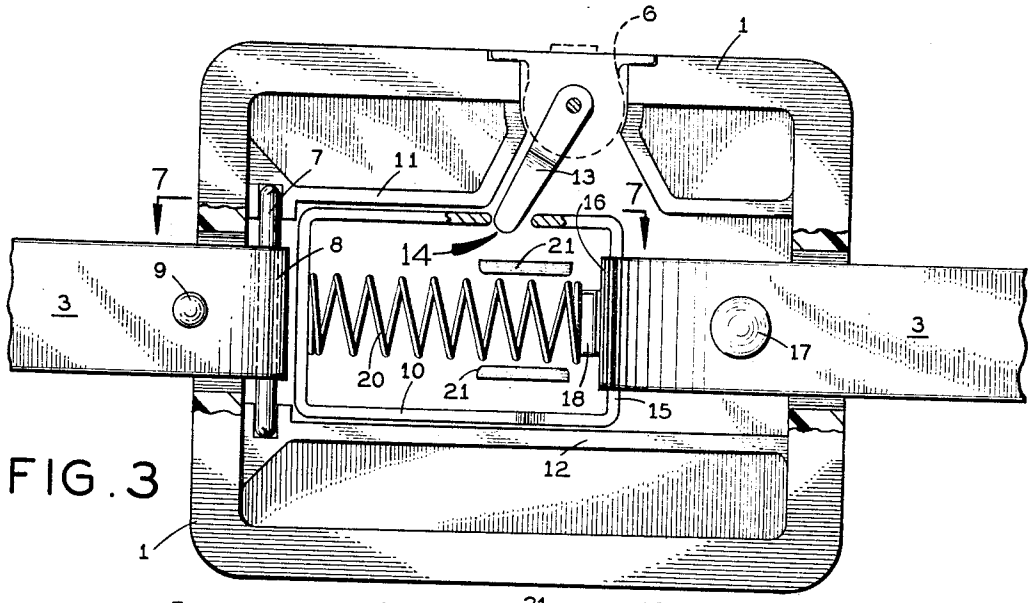


FIG. 3

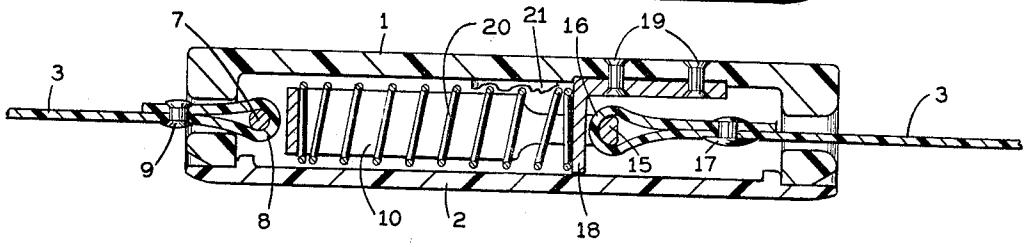


FIG. 4

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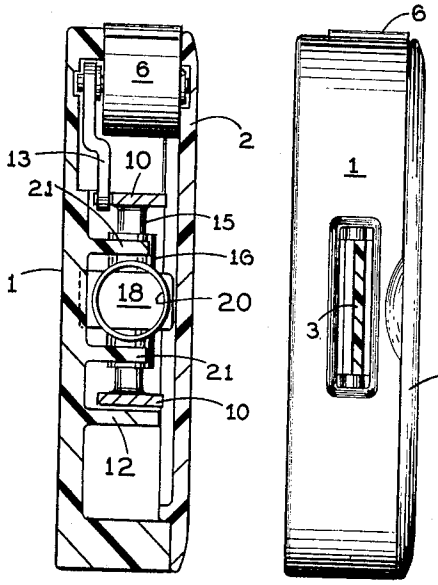


FIG. 5

FIG. 6

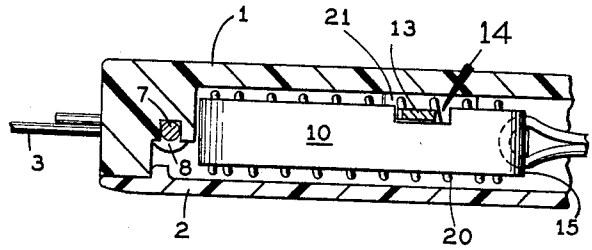


FIG. 7

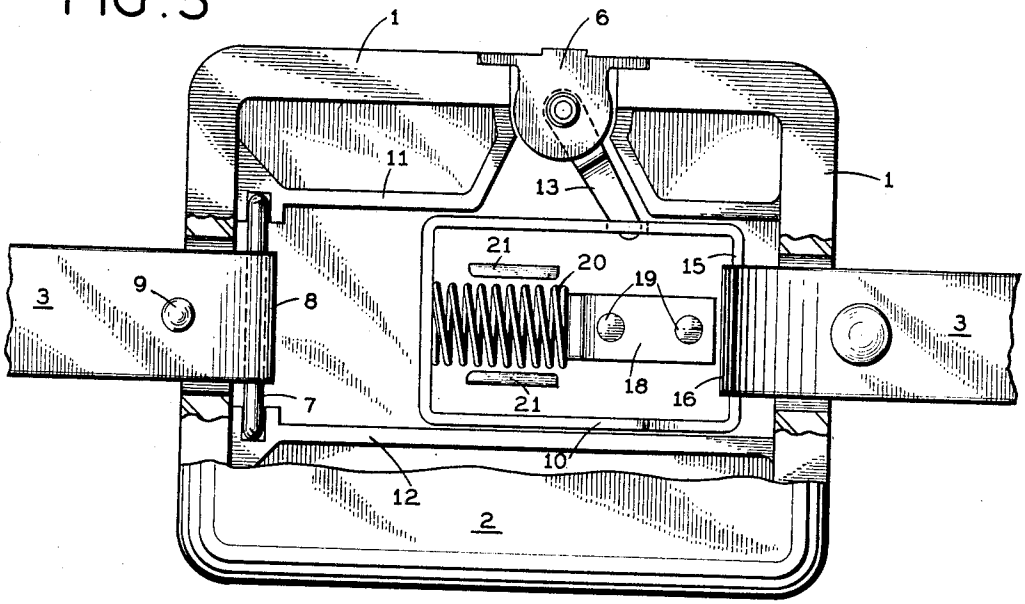


FIG. 8

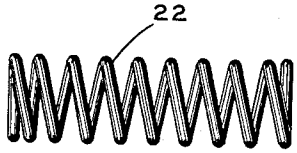


FIG. 9

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BODY-ATTACHED ABDOMINAL EXERCISE DEVICE

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Filed Sept. 24, 1963, Ser. No. 311,128
2 Claims. (Cl. 272—80)

This invention relates in general to physical exercise devices and more particularly to a device for encouraging and recording the exercise of abdominal muscles.

Specific exercise for waistline reduction is not necessarily included in general overall exercise programs and to this end the present invention is directed by the provision of a simple device for recording muscular exercise of the abdominal muscles when attached around the waist by simple belt means and is a principal object of the invention.

Another object of the invention is the provision of a waist belt having a spring means connected therein adapted to resist the expansion of abdominal muscles corresponding with a predetermined force provided by a selected spring retained therein.

A further object of the invention is the provision of a spring actuated means connected in series with a waist belt for resisting the expansion of abdominal muscles and including a recording means for recording the total number of sequential muscular expansions made during an exercise period.

These and other objects and advantages are described and shown in the following specification and drawings, in which:

FIG. 1 is a front elevation of the device in reduced scale.

FIG. 2 is a top plan view of the device shown in FIG. 1.

FIG. 3 is a fragmentary enlarged view of the device shown in FIG. 1 with cover removed.

FIG. 4 is an enlarged cross sectional view taken through section line 4—4, FIG. 1.

FIG. 5 is an enlarged cross sectional view taken through section line 5—5, FIG. 1.

FIG. 6 is an enlarged left end elevation of the device shown in FIG. 1 with the belt thereof broken away.

FIG. 7 is a cross sectional view taken through section line 7—7, FIG. 3.

FIG. 8 is the same as FIG. 3 in changed position.

FIG. 9 illustrates an alternate spring for that shown in FIG. 3.

Referring to FIGS. 1 and 2, a hollow casing **1** having a cover **2** secured thereon by friction or other snap fastener means, not shown, is preferably made from molded plastic material and is interposed in a flexible belt **3** having a conventional buckle **4** and a tongue portion **5** at opposite ends thereof.

A ratchet type counter **6**, adapted to be operated by oscillation of the shaft thereof, is secured in the upper side of casing **1** by suitable screws, as shown, providing for visibility of the numerals therein when the casing is positioned against the abdomen and the belt buckled around a waist of a person.

Referring to FIG. 3, a buckle portion of the belt **3** is secured in one side of the casing **1** through a suitable aperture in the left end thereof and looped around pin **7** which is retained in suitable pockets in the casing. The loop **8** in the end of the belt is retained by rivet **9** as shown.

A rectangular link member **10** is slidably retained in casing **1** between guides **11** and **12** and the inner walls of the casing and cover, as shown. The actuating arm **13** of the counter is secured to the shaft thereof and extends into recess **14** in link **10** for oscillation thereby.

The right hand end **15** of the link **10** is reduced in size for engagement with loop **16** in the tongue portion of the belt which is entered through a suitable aperture in the right hand end of casing **1** and which loop is retained by rivet **17**. A right angle stop bracket **18** is secured to the inner wall of casing **1** by rivets **19**, better shown in FIG. 4.

A helical compression spring **20** is retained between guides **21—21** which are integral with casing **1**, with the opposite ends thereof bearing against the left side of link **20** and the face of bracket **18**, respectively.

FIG. 9 illustrates one of a predetermined group of springs **22** having the same outside dimensions but different pressure characteristic resulting from modified wire size and/or modifications in temper, which spring may be readily substituted for spring **20** when the device is in the idle position shown in FIG. 3.

In operation, the belt **3** is snugly buckled around the waist of a person with the casing **1** positioned against the abdomen and then by the periodic contraction and expansion of the person's abdominal muscles the waist is exercised against the constricting action of the spring within the casing. The relative motion transmitted by the belt is illustrated in the changed position of the sprung elements shown in FIG. 8. Each periodic muscular effort will oscillate the tongue portion of the belt within the casing and move the link a corresponding distance against the restraining action of spring **20** and operate the counter by virtue of angular movement of its arm **13**.

Thus a person committed to waistline reduction by abdominal exercise is able to observe when a predetermined number of muscular efforts are completed.

Certain modifications to the above construction utilizing the features described are intended to come within the scope of the appended claims.

Having described our invention, we claim:

1. In a physical exercise device of the character described a hollow casing, an adjustable belt means having a pair of inner ends thereof terminating in said casing including a fastening means adapted to adjustably secure the outer end portions of said belt means around the waist of a person with said casing means positioned against the abdomen thereof, one of said inner ends fixed in said casing, a spring member fixed to the other of said inner ends and slidably retained in said casing for predetermined movement therein substantially colinear with said belt means, a stop projection in said casing positioned in spaced relation to said member, a helical spring retained in said casing with the opposite ends thereof positioned against said member and said projection respectively whereby variable expanding tension forces in said belt will move said spring member in said casing predetermined corresponding distances against the restraining action of said spring when said device is operated.

2. The construction recited in claim **1** including a ratchet counter in said casing having an actuating lever adapted for oscillatory movement, said lever engaged with said spring member for oscillatory movement thereby when said member is reciprocated whereby said counter will totalize and indicate the number of said distances moved by said spring member when said device is operated.

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