

Jan. 11, 1966

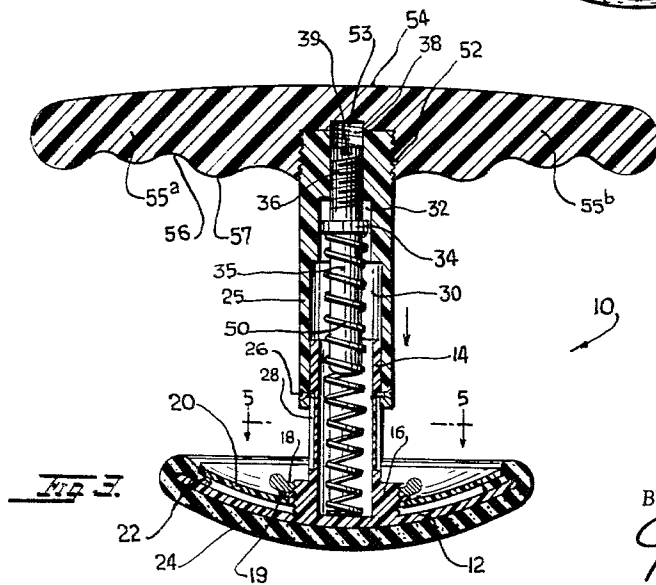
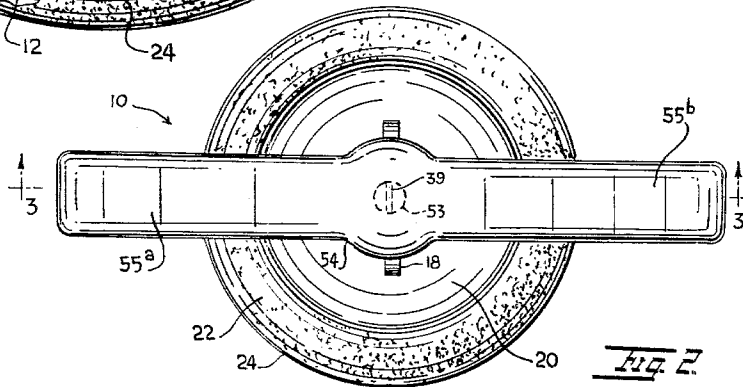
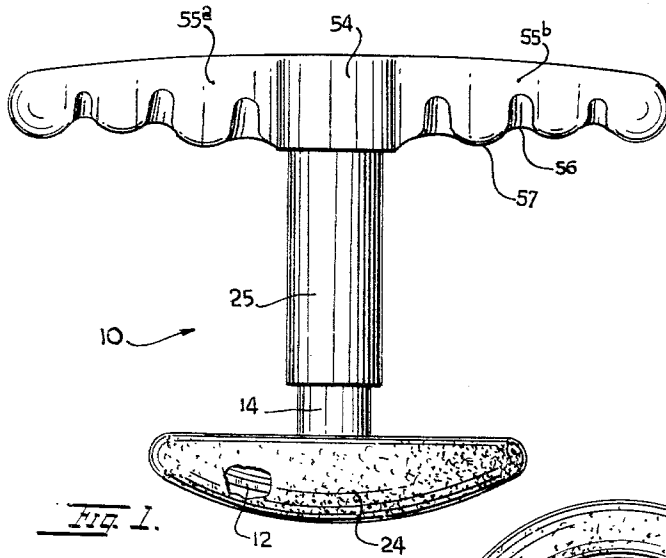
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3,228,392

ABDOMINAL EXERCISER

Filed July 15, 1963

3 Sheets-Sheet 1



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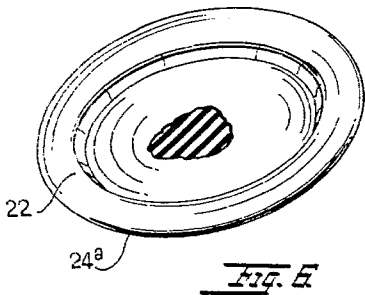
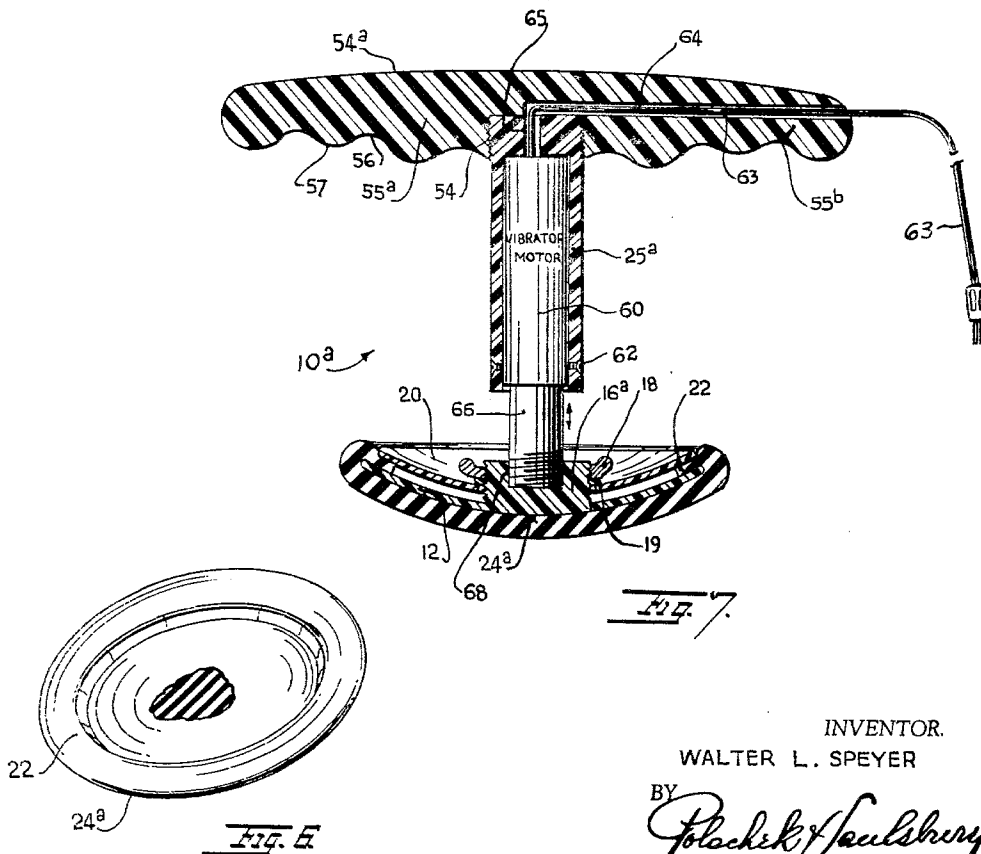
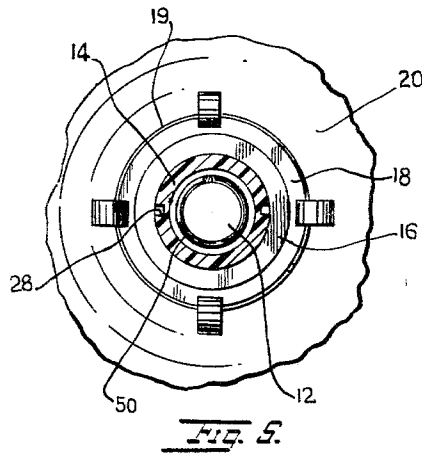
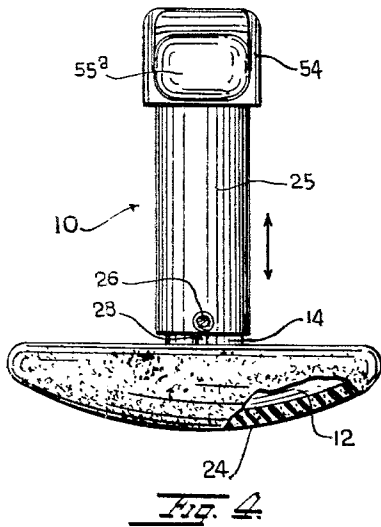
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ABDOMINAL EXERCISER

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3 Sheets-Sheet 2



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ABDOMINAL EXERCISER

3,228,392

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3 Sheets-Sheet 3

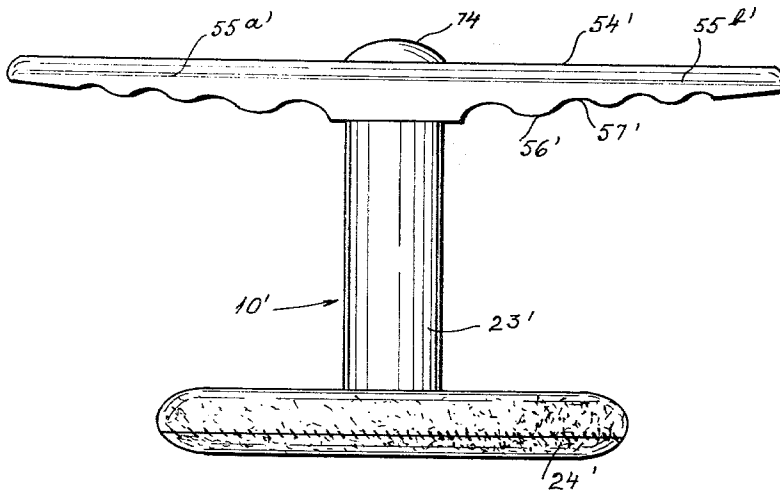


Fig. 8.

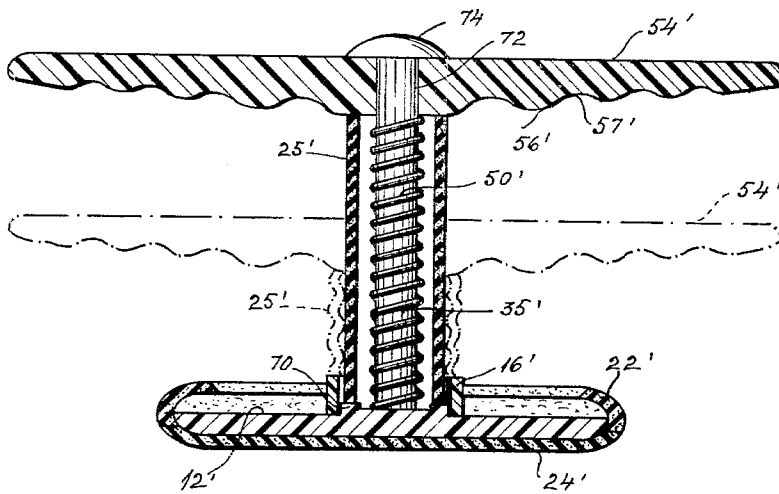


Fig. 9.

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1

3,228,392 ABDOMINAL EXERCISER

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10 Claims. (Cl. 128—55)

This invention relates to an abdominal exerciser and more particularly to a device for the relief of constipation by strengthening internal and external muscles of the abdomen and especially the peristalsis of intestines and to invigorate internal secretion of the digestive organs.

According to one form of the invention, there is provided a device including a dished plate which can be applied either directly to the body or covered by a resilient foam or foam rubber or foam plastic cover which can be removably attached to the dished plate to provide a flexible cushion between the rigid plate and the body of the user. The dished plate has attached a stem which fits slidably into an operating handle. The stem is surrounded by a coiled spring which is covered by a rubber hose acting as an additional spring.

It is therefore one object of the invention to provide an abdominal exerciser which can be used to apply a resilient dished plate to the abdomen with means for varying the pressure applied to the abdomen via the plate.

Another object is to provide an abdominal exerciser device as described with spring means inside the device to cushion and vary the pressure applied to the abdomen.

Further objects are to provide an abdominal exerciser as described with means for removably holding a resilient pad on the plate, with means for adjusting tension of the spring inside the device, and with means for applying pressure via a dual hand grip member.

For further comprehension of the invention, and of the objects and advantages thereof, references will be had to the following description and accompanying drawings, and to the appended claims in which the various novel features of the invention are more particularly set forth.

In the accompanying drawings forming a material part of this disclosure:

FIG. 1 is a side elevational view of a device embodying the invention, parts being broken away.

FIG. 2 is a top plan view of the device.

FIG. 3 is a sectional view taken on line 3—3 of FIG. 2.

FIG. 4 is an end elevational view of the device, parts being broken away, the device being shown in partially compressed position.

FIG. 5 is a fragmentary sectional view taken on line 5—5 of FIG. 3.

FIG. 6 is a perspective view of a resilient pad, parts being broken away.

FIG. 7 is a sectional view similar to FIG. 3, showing another device according to the invention.

FIG. 8 is a view similar to FIG. 1 of another modified form of the invention.

FIG. 9 is a vertical sectional view taken through the center of the device, parts being shown in moved position in dot-dash lines.

Referring first to FIGS. 1–5, there is shown the abdominal exerciser device 10 including a dished plastic plate 12. This plate has a smooth lower or outer convex side and an inner or upper concave side. Extending axially upward from the concave side of the plate is a cylindrical stem 14. The stem has a base portion 16 of

2

wider diameter which is externally threaded. On this threaded base portion can be engaged a wing nut 18, washer 19, and a dished, annular flange ring 20. The ring is slightly smaller in diameter than the diameter of the plate and its convex lower side faces the upper concave side of the plate. Between the ring 20 and periphery of the plate 12 may be engaged the annular intumed flange 22 of a dished foam rubber of plastic pad or cap 24. The thick dished portion of the pad overlays the convex side of the plate 12 to serve as a cushion when the plate is applied to the abdomen of a person using the device. When the nut 18 is tightened the pad is secured so that it cannot slip off the plate when the device is in use.

Axially slidable on the stem 14 is a sleeve 25. Near the lower end of the sleeve are two set screws 26 which extend inwardly into grooves 28 formed in the stem. The pad or cap provides a comfortable contact to the skin when exercising whereas other materials such as metal, plastic or wood feel cold and unpleasant. The grooves extend longitudinally of the stem on diametrically opposite sides thereof. The mutual engagement of the screws and grooves limits the upward and downward movement of the sleeve 25 on the stem to the length of the grooves 28.

The sleeve 25 has an internal axial bore 30 in which the stem extends. At its upper end the bore has a portion 32 of smaller diameter. In this bore portion 32 fits annular flange 34 formed on a shaft 35. The shaft has an upper threaded end 36 which is engaged in an upper threaded bore portion 38 of the sleeve. At the top of the shaft is a slot 39 which can receive the blade of a screwdriver for axially advancing or retracting the shaft in the sleeve. On the lower portion of the shaft fits a coil spring 50.

Spring 50 bears at its upper end on the flange 34 and at its lower end the spring bears on the center of the concave side of plate 12. The tension spring holds sleeve 25 extended axially upward from the plate 12 in an upper limiting position where screws 26 are located at the upper ends of grooves 28; see FIG. 3. The tension of the spring can be adjusted by turning shaft 35 in bore portion 38 to advance or retract the flange bearing down on the upper end of the spring.

The upper outer end of the sleeve 25 is externally threaded and engages in a threaded recess 52 formed in the underside of a handle 54. The handle has dual hand grips 55^a, 55^b provided with finger holds defined by groups of grooves and ridges 56, 57 at the underside of the handle. The handle extends transversely to the aligned axes of the sleeve 25 and stem 14. Recess 52 has an extension 53 aligned with threaded bore portion 38 into which the upper end of the shaft can extend.

In operation of the device, the user grasps the hand grips in both hands and applies the plate 12, with or without pad 24 mounted thereon, to the abdomen. By pushing the resilient pad and plate 12 toward the handle 54, the muscles of the abdomen will be relaxed and are "pushed out" after the manner of a pliers or scissors, the spring serving as a resistor to increase muscle power. Secondly, when the handle is pressed toward the plate 12, the organs of the abdomen are "squeezed in" tightly to increase blood circulation and internal secretion of the digestive organs after releasing the pressure. The tension in spring 50 varies as the user reciprocates the

handle toward and away from plate 12 to vary the pressure on the abdomen being exercised.

FIG. 6 shows another pad 24^a which is made of flexible rubber having a stiffer consistency than the softer foam rubber or plastic of pad 24. This pad can be used in place of pad 24 where a less flexible cushion is required between resilient plate 12 and the abdomen than is provided by foam pad 24.

FIG. 7 shows another device 10^a in which parts corresponding to those of the exerciser device 10 are identically numbered. Device 10^a employs a cylindrical vibrator motor 60 secured by screws 62 inside of sleeve 25^a. An electric cord 63 extends through a longitudinal bore 64 in handle 54^a and through axial bore 65 at the upper end of sleeve 25^a. The cord terminates inside of motor 60 for supplying the same with electric power to drive the same.

Motor 60 has an axial reciprocating piston shaft 66. The outer end of the piston shaft is externally threaded and engaged in threaded recess 68 formed in externally threaded piston base 16^a.

When the user grasps the dual hand grips 55^a, 55^b of handle 54^a and the motor 60 is turned on, piston 66 reciprocates plate 12 for vibrating the abdomen parts to which the plate is applied. Pad 24 or 24^a may be mounted on the plate as shown in FIG. 7 to cushion the force applied to the abdomen parts via resilient plate 12.

Referring now to the modified form of the device 10' shown in FIGS. 8 and 9, herein the abdominal exerciser device includes a circular plastic plate 12'. A socketed hub portion 16' extends upwardly from the center thereof. The socketed hub portion is formed with an annular shoulder 70. A circular dished foam rubber or plastic pad 24' covers the plastic plate 12'. The pad is formed with an intumed flange 22' overlying the periphery of the plate 12'.

An elongated round shaft 35' extends axially upwardly from the socketed hub portion 16', its bottom end seating on the base of the socketed portion. An elongate narrow plastic handle 54' is slidably mounted on the shaft 35' at the top thereof, the handle having a central hole 72 to receive slidably the top of the shaft. A round head 74 on the top of the shaft holds the handle on the shaft. The handle has dual hand grip portions 55^a, and 55^b, provided with finger holds defined by groups of grooves and ridges 57', 56' at the underside of the handle. The handle extends transversely to the aligned axis of the shaft 35' and socketed hub portion 16'. A coil spring 50' is sleeved around the shaft and has one end seated on the base of the socketed hub 16' and its other end impinging against the bottom center of the handle for urging the handle to uppermost position against the head 74 of the shaft.

In accordance with this form of the invention, a thin flexible plastic sleeve 25' is sleeved over the shaft 35' and spring 50', one end of the sleeve seating on the annular shoulder 70 of the socketed hub 16' and the other end impinging against the under surface of the handle around the hole 72.

In using the exerciser device 10', the user grasps the head grips of the handle 74', with both hands, and applies the plate 12' with or without the pad 24 mounted thereon to the abdomen. As in the use of the exerciser device 10, use of the resilient pad 24' is desirable.

In this form of the invention, the handle slides on the shaft against the action of the coil spring and against a collapsible sleeve, the spring transmitting the force to the dished plate or application to the body.

In all forms of the invention, the handle is designed and constructed to give a firm grip to the hands in order to enable the abdominal muscles to be exercised when the user is in a lying-down position.

The several external parts of devices 10, 10^a, and 10' are preferably made of strong, plastic material which can be inexpensively molded on mass production machinery.

The parts of the devices can easily be taken apart for replacement, cleaning and sterilization.

It is to be understood that the resilient pad 24' may be readily interchanged or removed from the plate 12' by sliding it off the plate 12' and may be replaced since it grips and adjusts itself automatically on the plate 12'.

While I have illustrated and described the preferred embodiments of my invention, it is to be understood that I do not limit myself to the precise constructions herein disclosed and that various changes and modifications may be made within the scope of the invention as defined in the appended claims.

Having thus described my invention, what I claim as new, and desire to secure by United States Letters Patent is:

1. An abdominal exerciser, comprising a resilient dished plate having opposing concave and convex sides, said convex side being smooth for applying to the abdomen, a hollow stem extending axially upward from the concave side of said plate, a sleeve concentric with said stem and axially slidable with respect to the stem, means retaining the sleeve on the stem, said sleeve having an axial bore, a coil spring axially disposed in said bore and extending through the stem, means for anchoring one end of the spring in said sleeve and the other end of the spring bearing down on said plate, and a handle attached to said one end of the sleeve and extending longitudinally perpendicular to the axis of said sleeve for manually reciprocating the sleeve on the stem, whereby varying pressure is applied to abdomen via said spring and said plate.

2. An abdominal exerciser, comprising a resilient dished plate having opposing concave and convex sides, said convex side being smooth for applying to the abdomen, a hollow stem extending axially upward from the concave side of said plate, a sleeve concentric with said stem and axially slidable with respect to the stem, means retaining the sleeve on the stem, said sleeve having an axial bore, a coil spring axially disposed in said bore and extending through the stem, means for anchoring one end of the spring in said sleeve and the other end of the spring bearing down on said plate, and a handle attached to said one end of the sleeve and extending longitudinally perpendicular to the axis of said sleeve for manually reciprocating the sleeve on the stem, whereby varying pressure is applied to the abdomen via said spring and said plate, said handle having opposite ends formed with ridges and grooves serving as finger holds while said opposite ends serve as dual hand grips.

3. An abdominal exerciser, comprising a resilient dished plate having opposing concave and convex sides, said convex side being smooth for applying to the abdomen, a hollow stem extending axially upward from the concave side of said plate, a sleeve concentric with said stem and axially slidable with respect to the stem, means retaining the sleeve on the stem, said sleeve having an axial bore, a coil spring axially disposed in said bore and extending through the stem, means for anchoring one end of the spring in said sleeve and the other end of the spring bearing down on said plate, a handle attached to said one end of the sleeve and extending longitudinally perpendicular to the axis of said sleeve for manually reciprocating the sleeve on the stem, whereby varying pressure is applied to the abdomen via said spring and said plate, said stem having an externally threaded base, an annular dished ring on said base facing the concave side of the plate, and a nut on the threaded base bearing on said ring, whereby a dished resilient pad having an internal radial flange may be engaged on said plate with the flange secured between said ring and said plate.

4. An abdominal exerciser, comprising a resilient dished plate having opposing concave and convex sides, said convex side being smooth for applying to the abdomen, a hollow stem extending axially upward from the

5

concave side of said plate, a sleeve concentric with said stem and axially slidable with respect to the stem, means retaining the sleeve on the stem, said sleeve having an axial bore, a coil spring axially disposed in said bore and extending through the stem, means for anchoring one end of the spring in said sleeve and the other end of the spring bearing down on said plate, a handle attached to said one end of the sleeve and extending longitudinally perpendicular to the axis of said sleeve for manually reciprocating the sleeve on the stem, whereby varying pressure is applied to the abdomen via said spring and said plate, said stem having an externally threaded base, an annular dished ring on said base facing the concave side of the plate, a nut on the threaded base bearing on said ring, and a dished resilient pad covering the convex side of the plate, said pad having internal radial flange engaged between said ring and the concave side of the plate.

5. An abdominal exerciser, comprising a resilient dished plate having opposing concave and convex sides, said convex side being smooth for applying to the abdomen, a hollow stem extending axially upward from the concave side of said plate, a sleeve concentric with said stem and axially slidable with respect to the stem, means retaining the sleeve on the stem, said sleeve having an axial bore, a coil spring axially disposed in said bore and extending through the stem, means for anchoring one end of the spring in said sleeve and the other end of the spring bearing down on said plate, a handle attached to said one end of the sleeve and extending longitudinally perpendicular to the axis of said sleeve for manually reciprocating the sleeve on the stem, whereby varying pressure is applied to the abdomen via said spring and said plate, and a dished resilient pad covering the convex side of the plate, said pad having an internal radial flange overlaying the concave side of the plate.

6. An abdominal exerciser, comprising a resilient dished plate having opposing concave and convex sides, said convex side being smooth for applying to the abdomen, a hollow stem extending axially upward from the concave side of said plate, a sleeve concentric with said stem and axially slidable with respect to the stem, means retaining the sleeve on the stem, said sleeve having an axial bore, a coil spring axially disposed in said bore and extending through the stem, means for anchoring one end of the spring in said sleeve and the other end of the spring bearing down on said plate, a handle attached to said one end of the sleeve and extending longitudinally perpendicular to the axis of said sleeve for manually reciprocating the sleeve on the stem, whereby varying pressure is applied to the abdomen via said spring and said plate, and a dished resilient pad covering the convex side of the plate, said pad having an internal radial flange overlaying the concave side of the plate, said handle having opposite ends formed with ridges and grooves serving as finger holds while said opposite ends serve as dual hand grips.

7. An abdominal exerciser, comprising a resilient dished plate having opposing concave and convex sides, said convex side being smooth for applying to parts of the body to be exercised, a hollow stem extending axially upward from the concave side of said plate, a sleeve concentric with said stem and axially slidable with respect to the stem, means retaining the sleeve on the stem, said sleeve having an axial bore, a coil spring axially disposed in said bore and extending through the stem, one end of the spring bearing down on said plate, a handle attached to said one end of the sleeve and extending longitudinally perpendicular to the axis of said sleeve for manually reciprocating the sleeve on the stem, whereby varying pressure is applied to the abdomen via said spring and said plate, said bore having an upper threaded section, and a shaft having one threaded end adjustably engaged in the upper threaded section of said bore, said shaft

6

having a lower end axially disposed in said spring, and an annular flange on said shaft located between opposite ends thereof engaging the other end of the spring within said bore.

8. An abdominal exerciser, comprising a dished plate having opposing concave and convex sides, said convex side being smooth for applying to the abdomen, a hollow stem extending axially upward from the concave side of said plate, a sleeve concentric with said stem and axially slidable with respect to the stem, means retaining the sleeve on the stem, said sleeve having an axial bore, a coil spring axially disposed in said bore and extending through the stem, one end of the spring bearing down on said plate, a handle attached to said one end of the sleeve and extending longitudinally perpendicular to the axis of said sleeve for manually reciprocating the sleeve on the stem, whereby varying pressure is applied to the abdomen via said spring and said plate, said bore having an upper threaded section, and a shaft having one threaded end adjustably engaged in the upper threaded section of said bore, said shaft having a lower end axially disposed in said spring, and an annular flange on said shaft located between opposite ends thereof engaging the other end of the spring within said bore, said stem having an externally threaded base, an annular dished ring on said base facing the concave side of the plate, a nut on the threaded base bearing on said ring, and a dished resilient pad covering the convex side of the plate, said pad having an internal radial flange engaged between said ring and the concave side of the plate.

9. An abdominal exerciser, comprising a dished plate having opposing concave and convex sides, said convex side being smooth for applying to the abdomen, a hollow stem extending axially upward from the concave side of said plate, a sleeve concentric with said stem and axially slidable with respect to the stem, means retaining the sleeve on the stem, said sleeve having an axial bore, a coil spring axially disposed in said bore and extending through the stem, one end of the spring bearing down on said plate, a handle attached to said one end of the sleeve and extending longitudinally perpendicular to the axis of said sleeve for manually reciprocating the sleeve on the stem, whereby varying pressure is applied to the abdomen via said spring and said plate, said bore having an upper threaded section, and a shaft having one threaded end adjustably engaged in the upper threaded section of said bore, said shaft having a lower end axially disposed in said spring, and an annular flange on said shaft located between opposite ends thereof engaging the other end of the spring within said bore, and a dished resilient pad covering the convex side of the plate, said pad having an internal radial flange overlaying the concave side of the plate.

10. An abdominal exerciser, comprising a dished plate having opposing concave and convex sides, said convex side being smooth for applying to the abdomen, a hollow stem extending axially upward from the concave side of said plate, a sleeve concentric with said stem and axially slidable with respect to the stem, means retaining the sleeve on the stem, said sleeve having an axial bore, a coil spring axially disposed in said bore and extending through the stem, one end of the spring bearing down on said plate, a handle attached to said one end of the sleeve and extending longitudinally perpendicular to the axis of said sleeve for manually reciprocating the sleeve on the stem, whereby varying pressure is applied to the abdomen via said spring and said plate, said bore having an upper threaded section, and a shaft having one threaded end adjustably engaged in the upper threaded section of said bore, said shaft having a lower end axially disposed in said spring, and an annular flange on said shaft located between opposite ends thereof engaging the other end of the spring within said bore, and a dished resilient pad covering the convex side of the plate, said pad having an internal radial flange overlaying the concave side of

the plate, said ring, stem, sleeve and handle all being made of rigid plastic material.

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