United States Patent

Morrison

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[54] MASSAGE-EXERCISER DEVICE

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[52] **U.S. Cl.** **128/57**

[51] **Int. Cl.** **A61h 15/00**

[58] **Field of Search** ..... 128/24.3, 24.4, 57, 25 B

[56] **References Cited**

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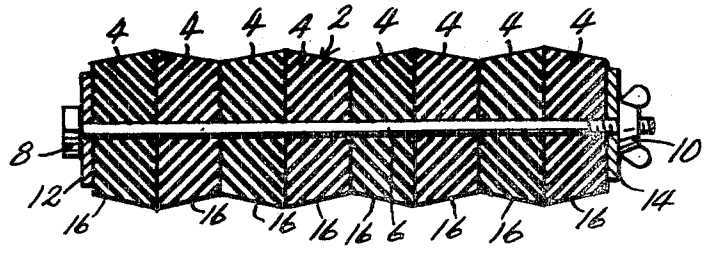
Primary Examiner—L. W. Trapp

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[57] **ABSTRACT**

A massage-exerciser device consisting of a number of resilient discs of frustoconical shape assembled in stacked coaxial relation to form a roller having peripheral ribs and grooves, said discs being reversible whereby to vary the pattern of said ribs and grooves, hard and soft spacers adapted to be inserted selectively between said discs whereby to increase or decrease the effective hardness of the roller, and a clamp for applying a variable axial compressive load to said roller, also to vary the effective hardness thereof, and a frame for carrying a plurality of said rollers rotatably in parallel, spaced-apart relation.

9 Claims, 11 Drawing Figures



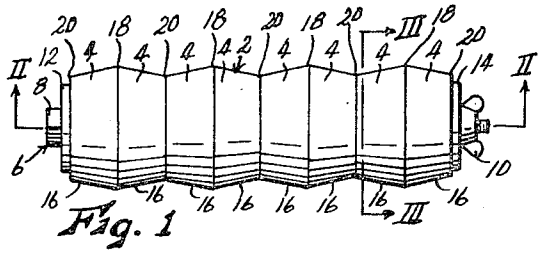


Fig. 1

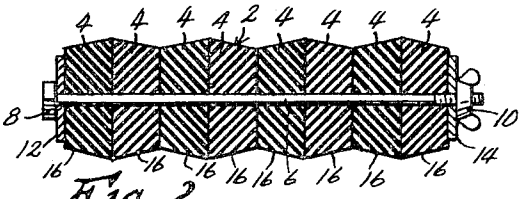


Fig. 2

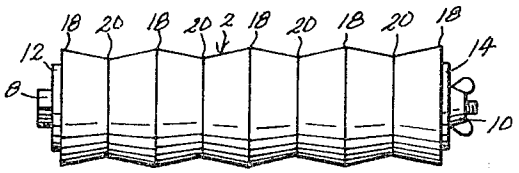


Fig. 4

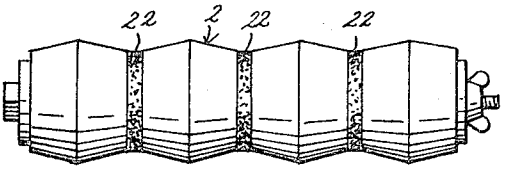


Fig. 8

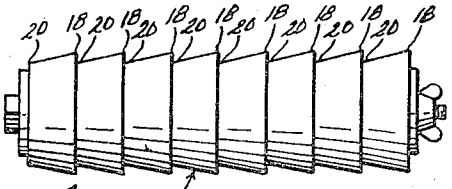


Fig. 5

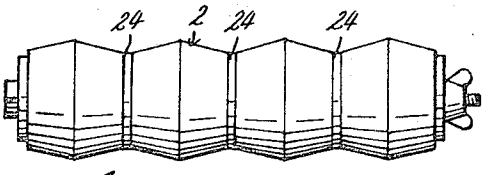


Fig. 9

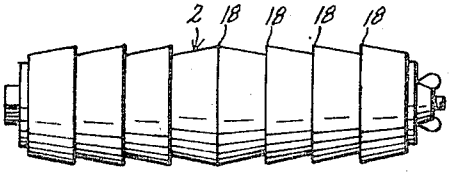


Fig. 6

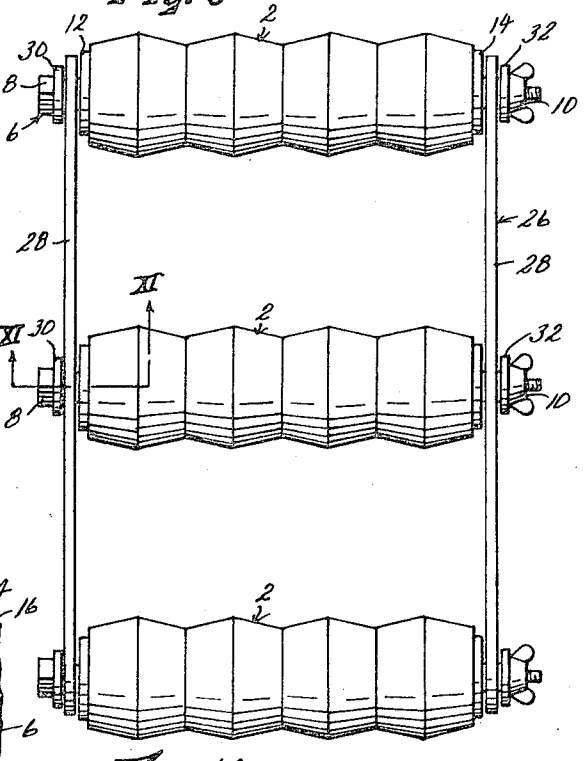


Fig. 10

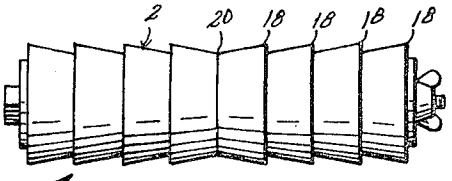


Fig. 7

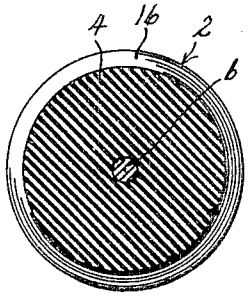


Fig. 3

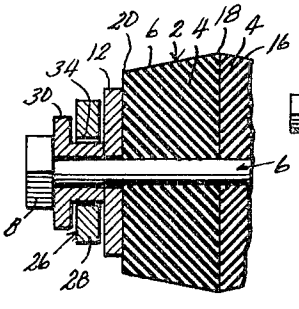


Fig. 11

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MASSAGE-EXERCISER DEVICE

This invention relates to new and useful improvements in devices for massaging and exercising muscles of the body, and has particular reference to such a device adapted for massaging and exercising the muscles of the back, although it may be applied to other portions of the body, as desired.

Accordingly, the principal object of the present invention is the provision of a device consisting essentially of a peripherally grooved roller of resilient material adapted to be laid upon the floor or other smooth, hard surface, whereupon the user may lie on his back thereon and move his body transversely to the roller axis to cause a rolling massage action between the roller and his back.

Another object is the provision of a device of the character described having a special construction whereby number, spacing, and configuration of the roller ribs may be varied to accommodate the particular needs or desires of individual users.

A further object is the provision of a device of the character described having means operable to adjust the effective firmness, or yieldability, of the roller to the needs or desires of individual users.

A still further object is the provision of a device of the character described including a plurality of said rollers mounted rotatably in parallel spaced apart relation in a suitable frame. As will appear, this permits a more restful, relaxed attitude on the part of the user, and is therefore especially adapted for the massaging of tired or sore muscles, rather than for exercising.

Other objects are simplicity and economy of construction, efficiency and dependability of operation, and adaptability for usage in a wide variety of massaging and exercising usages.

With these objects in view, as well as other objects which will appear in the course of the specification, reference will be had to the accompanying drawing wherein,

FIG. 1 is a side elevational view of a massage-exerciser device, embodying the present invention,

FIG. 2 is a sectional view taken on line II—II of FIG. 1, with parts left in elevation,

FIG. 3 is an enlarged sectional view taken on line III—III of FIG. 1,

FIGS. 4, 5, 6 and 7 are views similar to FIG. 1, but showing different arrangements of the roller discs,

FIG. 8 is a view similar to FIG. 1, but showing a modification contributing to greater effective softness of the roller,

FIG. 9 is a view similar to FIG. 1, but showing a modification contributing to greater effective hardness of the roller,

FIG. 10 is a top plan view of a modification of the device including a plurality of rollers, and

FIG. 11 is an enlarged, fragmentary sectional view taken on line XI—XI of FIG. 10.

Like reference numerals apply to similar parts throughout the several views. In its simplest form, the device forming the subject matter of the present invention comprises a roller indicated generally by the numeral 2 formed of a series (8 shown) of thick discs 4 formed of a semihard rubber or other material having a suitable degree of resilience. The roller should be of sufficient firmness that it will not be excessively deformed by the weight of a person lying thereon, but should nevertheless be deformable to some extent by such weight. Discs 4 are assembled in stacked, coaxial relation on a rigid mandrel 6 which may consist of an elongated steel bolt of small diameter as compared to the discs, having an enlarged head 8 at one end thereof, and a wing nut 10 threaded on its opposite end. A pair of washers 12 and 14 of rigid metal, are mounted on the mandrel respectively under head 8 and nut 10, bearing against the endmost discs 4 of the roller. By tightening nut 10, an axial compressive load may be applied to the roller. The peripheral surface 16 of each disc 4 is frustoconical in form, being evenly tapered in diameter from end to end. This disc configuration provides that the roller surface has peripherally extending ribs 18 and grooves 20. Said ribs are angular in cross-sectional contour, as shown, and may be relatively sharp and acute, if the rib is formed by the larger

end of only one of the discs, or may be relatively obtuse, if formed conjointly by the abutment of the larger ends of a pair of discs 4.

The general mode of usage of the roller is that it is laid on the floor or other smooth, flat, hard surface, and the user lies thereon, back down, with the roller beneath his back and extending transversely to his spine. Then the user lifts both his shoulders and hips from the floor, so that substantially his entire weight is supported on the roller, and moves his body transversely to the roller axis, using his hands and feet, resting on the floor, both to balance himself on the roller and to move his body back and forth across the roller. The roller thus rolls back and forth on the floor, and simultaneously exerts a rolling massage action on the user's back. This massaging action is very effective in alleviating the pain of stiff, sore muscles, and also the action provides very good exercise, since the user must tense his torso muscles to maintain his shoulders and hips off of the floor while his back is supported only by the roller at an intermediate line, and the rolling action provides a constantly moving fulcrum point which requires the user to bring various muscles into play on a cyclical basis. Basically, this is exercise of an isotonic nature.

It will be seen that with discs 4 arranged as in FIG. 1, so that they taper in alternately opposite directions, the ribs 18 are all blunt and obtuse, each being formed by the abutting larger ends of two discs, and that there is only one rib for each two discs. This produces a gentle massaging action, the blunt ribs impressing themselves into the flesh only relatively slightly, and there being relatively few ribs. It will be seen also in FIG. 1 that there is a groove 20 at the center point of the roller. This point of the roller moves, most commonly, directly over the spine of the user. For some persons pressure directly over the spine is uncomfortable or even painful, and should be avoided. For other persons, pressure directly on the spine is desired, and for these the discs may be arranged as in FIG. 4, each disc being reversed from its FIG. 1 position. This provides the gentle action of blunt ribs, as in FIG. 1, but positions one rib at the midpoint of the roller for exerting pressure directly over the spine.

In FIG. 5, the discs are arranged so as to taper all in the same direction longitudinally of the roller. The ribs 18 are thus relatively sharp and acute, each being formed by the larger end of a single disc and thus having an included angle only one-half that of the ribs of FIGS. 1 and 4, and there are also more ribs, one for each disc. This produces a relatively deep, through massaging action, the more acute ribs tending to penetrate more deeply, and there being a greater number of more closely spaced ribs. This is quite desirable for some persons. However, the FIG. 5 arrangement does result in a rib 18 at the midpoint of the roller, and for some persons this may be undesirable as already mentioned. For these persons, the roller discs may be arrange so as to taper outwardly from the midpoint of the roller, as shown in FIG. 6. This arrangement preserves the deeper massage action of the acute ribs along the major portion of the length of the roller, but provides a single blunt rib at the roller midpoint, for gentler action on the spine. Or the discs may be arranged to taper inwardly toward the roller midpoint, as shown in FIG. 7, thereby providing a groove 20 at the midpoint of the roller, for still gentler action on the spine.

Various means are provided for adjusting the effective hardness or firmness of the roller to the individual needs and preferences of users. Some persons derive greater benefit and comfort from a relatively soft roller, while others prefer a very firm roller. One of these means, already referred to, is that wing nut 10 may be turned on bolt 6 to apply various degrees of axial compression to discs 4. Such compression of course deforms and prestresses the discs, so that resistance to further deformation thereof by the weight of a person using the roller as described is increased. FIG. 8 shows means for increasing the effective softness of the roller beyond the degree of obtainable with the arrangements of FIGS. 1–7, even presuming that in those arrangements wing nuts 20 were loosened to

remove all compressive loads from discs 4. Said nuts cannot be backed off far enough to allow actual free spacing between the discs, since this would permit pinching of the user's skin between the discs as he moves on the roller. In FIG. 8, there are provided a number of spacers 22 each consisting of a circular washer, threaded on bolt 6 and each interposed between a successive pair of discs 4. Said spacers are of a resilient material more softly yieldable than the material of which discs 4 are formed, such as foam rubber, and should be of no greater diameter than the smaller ends of said discs. Said spacers permit easier deformation of the discs, in particular permitting easier deformation or "flow" of the discs in a direction parallel to the roller axis, thereby producing an effectively softer more yieldable roller. At the same time, the resilience of the spacers maintains all of the discs in firm end-to-end engagement, so that no pinching can occur. The number and disposition of the spacers is a matter of choice, the effective softness of the roller increasing with the number of spacers used.

FIG. 9 shows means for providing a roller of greater effective hardness or firmness than can be produced in the arrangements of FIG. 1–7, even by tightening wing nuts 10 to their fullest extent, said means consisting of a series of spacers 24 constituting circular washers of rigid metal threaded on bolt 6 and each interposed between a successive pair of discs 4. Here again the number and disposition of spacers is a matter of choice, greater numbers of spacers imparting greater effective hardness. Spacers 24 may be of no greater diameter than the smaller ends of discs 4, and may in fact be somewhat smaller, since said spacers, being rigid and unyielding, should never be allowed to engage or exert pressure directly on the user's body. Spacers 24 stiffen the roller since, by equalizing pressure over the entire abutting areas of the discs 4 between which they are interposed, tend to prevent localized deformation of portions of a disc, in a direction parallel to the roller axis, into zones normally occupied by adjoining discs. Such localized deformation occurs more easily and with less force than required to compress a disc over its entire area, so elimination of such localized deformation effectively stiffens the roller. FIGS. 8 and 9 show spacers 22 and 24 combined with discs 4 arranged as in FIG. 1, but said spacers are equally applicable when the discs are arranged as in FIGS. 4, 5, 6, or 7. While the roller softness or hardness provided respectively by spacers 22 or 24 may be desired by any given person when using the roller for either massage or exercise, it is generally true that softer rollers are most desirable for massage, and harder rollers for exercise.

As previously noted, it requires considerable exertion on the part of the user to roll on a single roller while holding his shoulders and hips out of contact with the floor, as described. Such exertion is to be desired when the device is being used as an exerciser, but is not conductive to the relaxation of muscles normally desired when the device is being used for massage. FIG. 10 and 11 show an arrangement of a plurality of rollers 2 (three shown) producing a massage device which requires less exertion by the user and hence is conducive to greater relaxation. The rollers are arranged in parallel spaced apart coextensive relation, with their axes disposed in a single plane, and are maintained in this relation by a frame 26 consisting of a pair of strap metal side bars 28 extending transversely to the roller axes at respectively opposite ends of said rollers, each side bar being connected to the corresponding ends of all of said rollers. These connections must be rotatable, to permit the rollers to roll on the floor. For this purpose, a pair of flanged tubular bushings 30 and 32 are threaded on each mandrel bolt 6, respectively between bolt head 8 and washer 12, and between nut 10 and washer 14. Each side bar 28 has an aperture 34 (see FIG. 11) formed therein for engaging rotatably over each of said bushings, the side bar fitting loosely between the bushing flange and the adjacent washer 12 or 14. The bushings abut the washers, so that bolt 6 can be tightened or loosened to vary the axial compression of the roller, as described, without impeding the rotation of the roller. A person lying back-down on this device is supported by all three rollers along three spaced-apart lines, and thus need exert himself only slightly to maintain his shoulders and hips off of the floor. While FIG. 10 shows rollers 2 with their discs 4 arranged as in FIG. 1, it will be apparent that the FIG. 10 rollers could have their discs arranged as in FIGS. 4, 5, 6, and 7, or could include the spacers 22 and 24 of FIGS. 8 and 9, or any combination thereof.

While I have shown and described certain specific embodiments of my invention, it will be readily apparent that many minor changes of structure and operation could be made without departing from the spirit of the invention.

What I claim as new and desire to protect by Letters Patent is:

1. A massage-exerciser device comprising:
   a. a series of flat circular discs of resilient material of nonuniform diameter from end to end whereby to present peripheral ribs and grooves, the rib and groove of each of said discs being asymmetrical with respect to the ends of said disc, and
   b. means assembling said discs in stacked, coaxial relation to constitute conjointly a roller having peripheral ribs and grooves, and said assembly means being operable to permit selective end-for-end reversal of any of said discs, whereby, in conjunction with the asymmetrical configuration of each of said discs, to vary the rib and groove pattern of said roller.

2. A device as recited in claim 1 wherein each of said discs is of larger diameter at one end than at the other end, whereby if the discs are assembled with the larger ends of adjacent discs in abutment, said larger ends conjointly form a single rib of relatively blunt, obtuse cross-sectional contour, and whereby if the discs are assembled with the larger end of one disc abutting the smaller end of an adjacent disc, said larger end forms a single rib of relatively sharp or acute cross-sectional contour.

3. A device as recited in claim 1 wherein the peripheral surface of each of said discs is of generally frustoconical form, being of larger diameter at one end than at the other.

4. A device as recited in claim 1 with the addition of means operable to apply a variable compressive load to said stack of discs in a direction parallel to their common axis.

5. A device as recited in claim 1 wherein said assembling means includes means operable to apply a variable compressive load to said stack of discs in a direction parallel to their common axis.

6. A device as recited in claim 1 wherein said assembling means comprises a rigid mandrel extending axially through each of said discs and having an enlargement thereon at the respectively opposite ends of said stack of discs, said enlargements abutting the endmost discs of said stack of discs and one of said enlargements being adjustably movable along said mandrel, whereby to apply a variable axial compressive load to said stack of discs.

7. A device as recited in claim 1 with the addition of one or more spacer members interposed between successive pairs of said discs, and being formed of a resilient material softer and more yieldable than the material of which said discs are formed.

8. A device as recited in claim 1 with the addition of one or more spacer members interposed between successive pairs of said discs, and being formed of a substantially rigid material.

9. A device as recited in claim 1 including a plurality of said rollers having their axes disposed in parallel, spaced-apart, coextensive coplanar relation, and with the addition of a frame retaining said rollers in this relation, and in which each of said rollers is mounted for rotation about its axis.

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