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STIMULATING MASSAGE DEVICE

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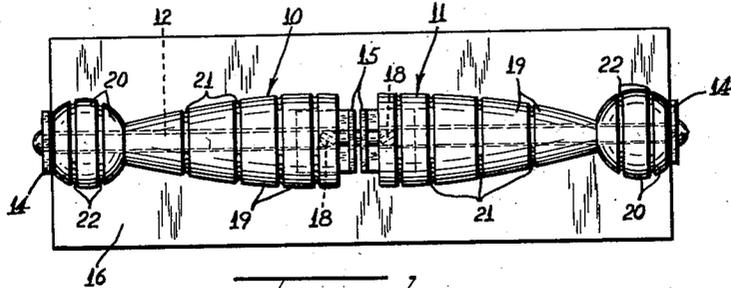


Fig. 1.

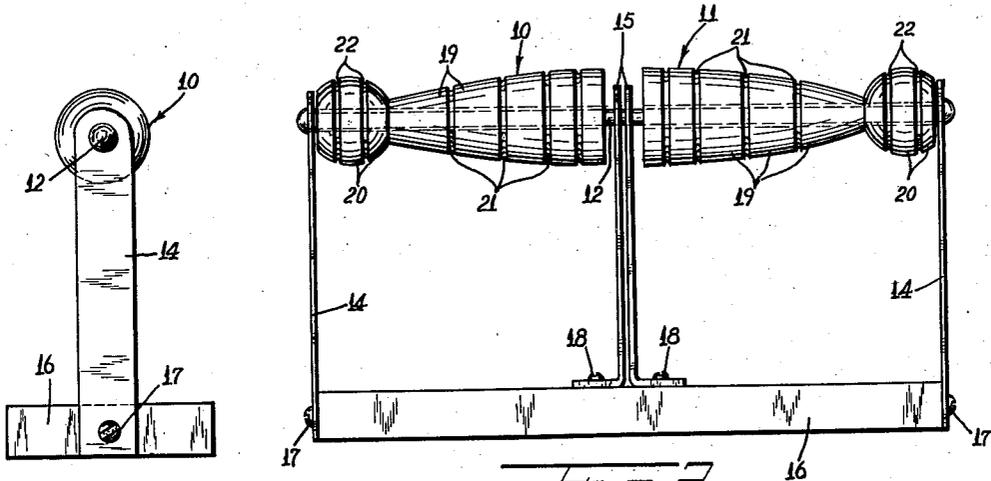


Fig. 2.

Fig. 3.

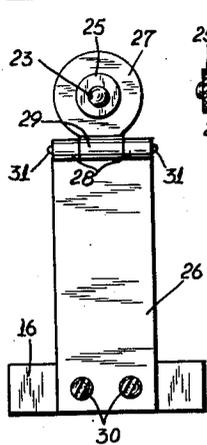


Fig. 4.

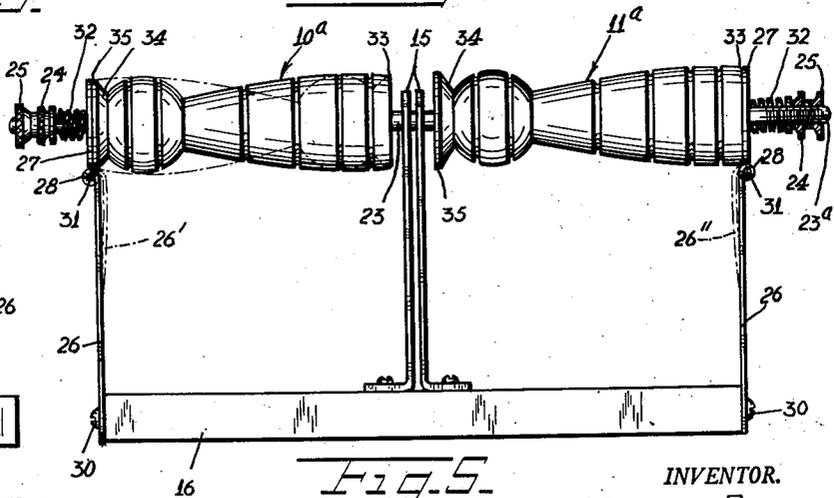
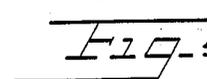


Fig. 5.

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# UNITED STATES PATENT OFFICE

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## STIMULATING MASSAGE DEVICE

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6 Claims. (Cl. 128-57)

1

This invention relates to new and useful improvements in massage devices, and, more particularly, aims to provide a novel and valuable muscle-exercising, circulation-stimulating and massage device for use in connection with the arm and leg muscles.

According to the invention, a pair of elongated and specially exteriorly shaped rollers are provided and mounted in end to end relation for independent or simultaneous rotation about substantially aligned axes, whereby, for instance in exercising the muscles of a particular leg, stimulating the circulation in regard thereto and massaging a foot to correct a physically defective condition or conditions, that one of the rollers particularly adapted to have helpful contact with such foot may be rotated by that foot; for instance in simultaneously exercising the muscles of both legs, stimulating the circulation in regard thereto and massaging both feet, both rollers may be simultaneously rotated one to best advantage by one foot and the other to best advantage by the other foot; and, for instance in simultaneously exercising the muscles of both arms, stimulating the circulation in regard thereto and massaging and articulating the bone-joints of both hands to correct a defective condition thereof, both rollers may be simultaneously rotated one by one hand and the other by the other hand.

The invention involves other features and advantages as will later be explained.

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

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

Fig. 1 is a top plan view of one embodiment of the invention as now favored.

Fig. 2 shows the same in side elevation.

Fig. 3 is an end elevation thereof.

Fig. 4 shows, in end elevation, a modified form of said embodiment.

Fig. 5 shows such modification in side elevation, with parts at the extreme right in section; this view also showing in dot and dash lines a reversed position of one of the rollers.

The massage device, according to the form of the invention shown in Figs. 1 to 3, includes rollers 10 and 11. Each roller is of special shape, and while both rollers are alike, they are reversely arranged, each for independent rotation

2

about a horizontal axis common to both rollers, as by being loosely mounted on a common shaft 12.

The shaft 12 is journaled in apertures through the upper ends of a pair of end standards 14 and a pair of auxiliary standards 15. These standards at their lower ends are so connected to plate or block-like base 16 that the shaft 12 is rigidly held to its appointed location above the top of said base, whereby, with the user seated in a chair and the base 16 resting on the floor, the two rollers are revolvably positioned for easy application of either foot to the appropriate roller or of both feet simultaneously to both rollers, and whereby, with the base 16 resting on a table or the like, the two rollers are revolvably positioned for easy application of either hand to the appropriate roller or of both hands simultaneously to both rollers.

Standards 14 are alike, and are shown as flat strips, attached to the ends of the base 16, as by screws 17; and the standards 15 are alike, and are shown as L-bent strips attached to the top of the base 16 as by screws 18.

Each of the rollers 10 and 11, which may be of one-piece construction, and fabricated of wood, hard rubber, a plastic or some other suitable material, has a contour which is a surface of revolution, so that the roller at any point along the length thereof is of circular cross-section, and is characterized by two main formations, one elongated axially of the roller and in the shape of a truncated ogive, this marked 19, and the other, immediately adjoining the formation 19 at its end of smallest diameter, of a shape such that a spherically extended surface thereof is opposite said end of the formation 19. As shown, the formation 20 is of substantially complete sphericity, except at its plane of merger with the formation 19, and except for a corresponding slight flattening at its opposite end.

The formation 19 is interrupted at irregular intervals by a series of peripheral grooves 21, these in planes perpendicular to the axis of the shaft 12, and the formation 20 is interrupted by a plurality of peripheral grooves 22, these also in planes perpendicular to the axis of said shaft.

The grooves 22 are, relative to the direction of extension of the formation 20 axially of the roller, symmetrically placed on said formation.

The grooves 21, however, are irregularly spaced along the length of the formation 19, with one such groove, what may be called the first groove, fairly close to the end of said formation of largest diameter, the next or second groove toward

3

the formation 20 somewhat further spaced from said first groove, the next or third groove toward the formation 20 still further spaced from said second groove, and the next groove toward the formation 20 still further spaced from the third groove. That is the last-mentioned groove is spaced further from the said third groove than the latter is from said second groove; the said third groove is spaced further from the said second groove than the latter is from said first groove; and said second groove is spaced further from said first groove than the latter is from the end of the formation 19 of largest diameter.

It has been found, as to the formations 19 and 20, and with the two rollers revolvably mounted as described, each for independent rotation as by an appropriate hand or foot, or both for simultaneous rotation by both hands or by both feet either in the same direction or in opposite directions and at the same speed of rotation or at different speeds of rotation, a great variety of different conditions to be treated are treated with maximum advantage.

In exercising the arm muscles, a succession of varying hand grips may be had, each for exercising a particular arm muscle, and each of various such grips for best treating a particular abnormal bone-joint or other defect. With the general center lines of the hands extended at various angles to the planes of the grooves 21 and 22, different circulation inducing effects will be obtained. For the development of other muscles, and for other circulation inducing effects, the device may be reversed, so as to have the roller 10 substituted for the roller 11 relative to one hand and to have the roller 11 substituted for the roller 10 relative to the other hand. Thus, alternately, the ball like formation 20 of a roller may be so placed as to act particularly close to the thumb-adjacent side of a hand, and to act particularly close to the other side of a hand.

All these advantages are present in applying the left foot to the roller 10 or 11, in applying the right foot to the roller 11 or 10, or in simultaneously applying both feet to the rollers. Furthermore, the sphericity of the formation 20 has been found to be especially helpful in quickly alleviating the sometimes agonizing pain due to a metatarsal defect. For general massaging of the feet, the ogival characteristic of the formation 19, with its gentle curvature longitudinally of the formation 19, has a soothing as well as a curative effect. Also, in certain foot troubles, beneficial results are obtained when a portion of a foot laterally bridges the circumferentially depressed portion of a roller extending from about the mid-point along the length of the formation 19 to the crest of the formation 20.

Referring to the modification shown in Figs. 4 and 5, the therein included rollers 10<sup>a</sup> and 11<sup>a</sup> are exactly like the rollers 10 and 11 except for certain special end shapings of the former rollers later to be explained; and also included in the modification of Figs. 4 and 5 are the same standards 14 and the same base 16 as in Figs. 1-3, with said standards similarly secured to the base.

Instead of the shaft 12, however, a shaft 23 is provided which, instead of being riveted in place at its opposite ends as in the case of the shaft 12, is threaded at opposite ends, as indicated at 23<sup>a</sup> in Fig. 5, and at each of such ends is provided with a knurled nut 24 and a knurled lock nut 25. Also, in lieu of the standards 14, standard-struc-

4

tures are provided each comprising a rather wide and thin leaf-spring 26 and a thicker plate 27. Each leaf-spring 26, because of its thinness, is secured at its bottom to the base 16 by a plurality of screws as indicated at 30.

Each plate 27 is near its bottom pivotally mounted on the upper end of its leaf-spring 26 by way of a pair of laterally spaced curls 28 formed at the upper end of the leaf-spring, an interfitting curl 29 formed on the lower end of the plate 27, and a pivot pin 31. Interposed between each plate 27 and the nut 24 on its end of the shaft 23 is a fairly strong expansible coil spring 32 sleeving the shaft.

This construction serves a number of purposes. It allows either roller to be reversed, as, for instance, a reversal of the roller 10<sup>a</sup> from its full-line position to its position shown in dot and dash lines; and it allows both rollers to be reversed, thus to transpose the two rollers, so as to have the substantially spherical formations of both rollers adjacent each other, as, for instance, by arranging the roller 11<sup>a</sup> as shown in Fig. 5, and arranging the roller 10<sup>a</sup> as there shown in dot and dash lines.

For transposing both rollers, or for reversing a roller, it is merely necessary, after removing the nuts 24 and 25 and spring 32 at an end of the shaft 23, to slide the shaft endwisely the distance required, as the case may be, to permit reversal of one roller, or both rollers; and then, when the desired roller rearrangement relative to the shaft has been made, to reapply said spring and nuts.

In order to limit the size of the plates 27, and yet avoid interference between the curls 28 and 29 at the pivotal mounting of a plate 27 on its leaf-spring 26, the formations on the rollers 10<sup>a</sup> and 11<sup>a</sup> which correspond to the formations 19 of the rollers 10 and 11 are, at the larger-diametered ends of said formations, slightly rounded off as indicated at 33.

Thus, the rollers may be arranged in various relations, each particularly beneficial for best treating some specially indicated physical defect or condition.

Furthermore, either nut 24 may be turned up on the shaft 23, and fixed by the lock nut 25, for compressing the adjacent spring 32 to an extent to predetermine any one of a number of possible different degrees of friction drag to be exerted by the associated plate 27 on the adjacent end of the adjacent roller, thereby to set up a predetermined resistance to any turning of that roller to be overcome in exercising the muscles incidental to hand or foot action on said roller.

Each plate 27 is pivotally mounted on the upper end of its leaf-spring 26, to allow said plate always to remain vertical, for good flatwise contact against the adjacent end of the adjacent roller, despite the imparting of a resilient sway to a leaf-spring, as indicated in dot and dash lines at 26' or 26'' in Fig. 5, in response to compression of the associated spring 32.

In order to have such flatwise contact extend over a like areal expanse, regardless of which end of a roller is being pressed against by a plate 27, each of the rollers 10<sup>a</sup> and 11<sup>a</sup> is conically outwardly flared as at 34, such flare terminating in a very short cylindrical extension 35 about as long as the thickness of a plate 27.

Said parts 34 and 35, and said roundings 33, are the aforesaid special end shapings of the rollers 10<sup>a</sup> and 11<sup>a</sup>; so that the rollers 10<sup>a</sup> and 11<sup>a</sup>

5

are exactly like the rollers 10 and 11 except that the latter are not provided with said end shapings.

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 the right is reserved to all changes and modifications coming 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. A massage device, comprising a base, a pair of adjacent standards projected upward from said base, a shaft supported intermediate of its ends upon the top ends of said standards, rollers rotatively mounted on said shaft on opposite sides of said standards, means supporting the ends of said shaft, and manually adjustable means on the ends of said shaft for urging said support means to frictionally engage the ends of said roller and retain said rollers against free rotation on said shaft.

2. In a massage device, a base, adjacent standards projected upward from said base, a shaft rotatively supported intermediate of its ends on the top ends of said standards, rollers rotatively mounted on the shaft on opposite sides of the standards, means supporting the ends of the shaft, and manually adjustable means for frictionally retaining the rollers against free rotation on the shaft, said supporting means comprising flexible leaf springs mounted on the base beneath the free ends of the shaft and extended vertically therefrom, and plates mounted on the top ends of said leaf springs, said plates being formed with holes through which the free ends of said shaft are rotatively and slidably extended.

3. In a massage device, a base, adjacent standards projected upward from said base, a shaft rotatively supported intermediate of its ends on the top ends of said standards, rollers rotatively mounted on the shaft on opposite sides of the standards, means supporting the ends of the shaft, and manually adjustable means for frictionally retaining the rollers against free rotation on the shaft, said supporting means comprising flexible leaf springs mounted on the base beneath the free ends of the shaft and extended vertically therefrom, and plates mounted on the top ends of said leaf springs, said plates being formed with holes through which the free ends of said shaft are rotatively and slidably extended, said frictional retaining means comprising coil springs mounted on the ends of the shaft and bearing against the outer faces of said plates, and nuts threaded on the ends of the shaft and bearing against the outer ends of said springs to compress said springs and frictionally clamp said rollers between the adjacent faces of the standards and said plates.

4. In a massage device, a base, adjacent standards projected upward from said base, a shaft rotatively supported intermediate of its ends on the top ends of said standards, rollers rotatively mounted on the shaft on opposite sides of the standards, means supporting the ends of the shaft, and manually adjustable means for frictionally retaining the rollers against free rotation on the shaft, said supporting means comprising flexible leaf springs mounted on the base beneath the free ends of the shaft and extended

6

vertically therefrom, and plates mounted on the top ends of said leaf springs, said plates being formed with holes through which the free ends of said shaft are rotatively and slidably extended, said frictional retaining means comprising coil springs mounted on the ends of the shaft and bearing against the outer faces of said plates, and nuts threaded on the ends of the shaft and bearing against the outer ends of said springs to compress said springs and frictionally clamp said rollers between the adjacent faces of the standards and said plates, said plates being pivotally mounted on the top ends of said leaf springs to seat flush against the adjacent ends of the rollers in all the adjusted positions of said nuts.

5. In a massage device, a base, adjacent standards projected upward from said base, a shaft rotatively supported intermediate of its ends on the top ends of said standards, rollers rotatively mounted on the shaft on opposite sides of said standards, flexible leaf springs mounted on said base and extended vertically therefrom, plates pivotally mounted on the top ends of said leaf springs, said plates being formed with holes through which the free ends of the shaft are rotatively and slidably extended, coil springs mounted on the ends of the shaft and bearing against the outer faces of said plates and nuts threaded on the ends of the shaft and bearing against the outer ends of said springs to compress said springs and frictionally clamp said rollers between the adjacent faces of the standards and said plates to retain said rollers against free rotation with relation to the shaft.

6. In a massage device, a base, adjacent standards projected upward from said base, a shaft rotatively supported intermediate of its ends on the top ends of said standards, rollers rotatively mounted on the shaft on opposite sides of said standards, flexible leaf springs mounted on said base and extended vertically therefrom, plates pivotally mounted on the top ends of said leaf springs, said plates being formed with holes through which the free ends of the shaft are rotatively and slidably extended, coil springs mounted on the ends of the shaft and bearing against the outer faces of said plates, and nuts threaded on the ends of the shaft and bearing against the outer ends of said springs to compress said springs and frictionally clamp said rollers between the adjacent faces of the standards and said plates to retain said rollers against free rotation with relation to the shaft, and lock nuts threaded on the ends of the shaft and bearing against the outer faces of said first-mentioned nuts securing them in desired adjusted positions.

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