United States Patent

[11] 3,612,043

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[54] **HEALTH SHOE**
1 Claim, 7 Drawing Figs.

[52] **U.S. Cl.** ..... **128/57,** 128/25 B, 128/582
[51] **Int. Cl.** **A61h 15/00**
[50] **Field of Search** 128/24.3, 25, 582, 57; 272/57

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ABSTRACT: A health shoe for stimulating and improving nerve and muscle tone throughout the body of a wearer providing a frame adapted to be worn on the foot of a wearer while walking with the frame having a motion-generating, fast-stimulating member mounted thereon and a flowable, particulate material interposed the foot of the wearer and the stimulating member to transmit and to convert such motion of the stimulating member into a massaging force upon the sole portion of the foot of the wearer.

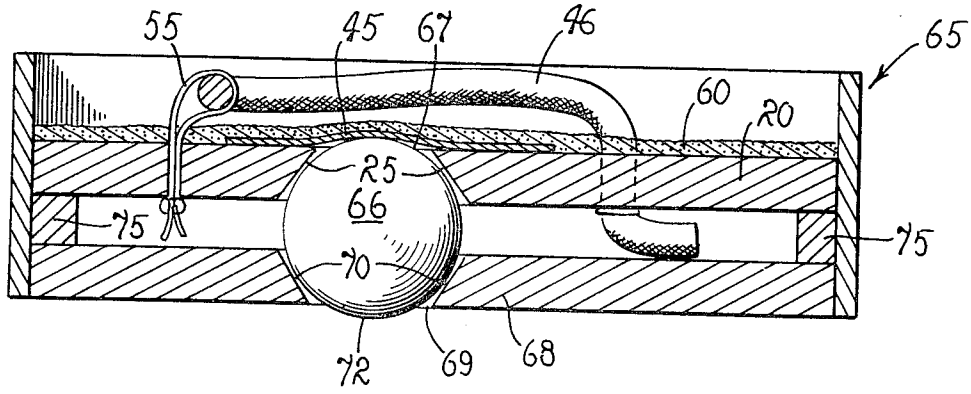


FIG. 1.

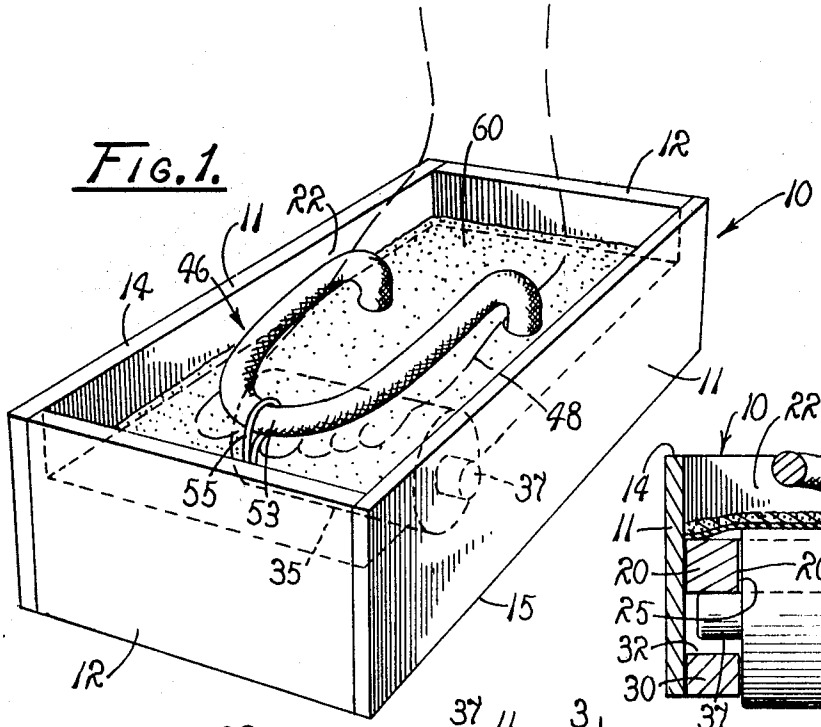
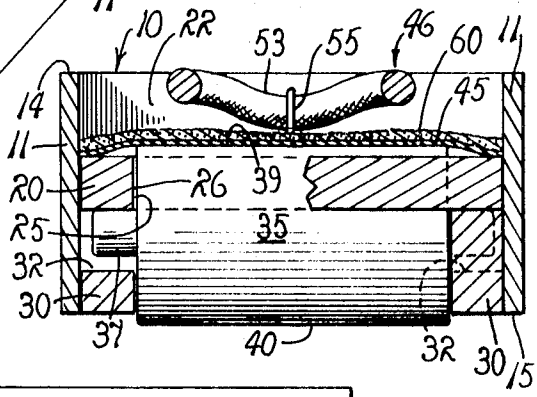


FIG. 3.



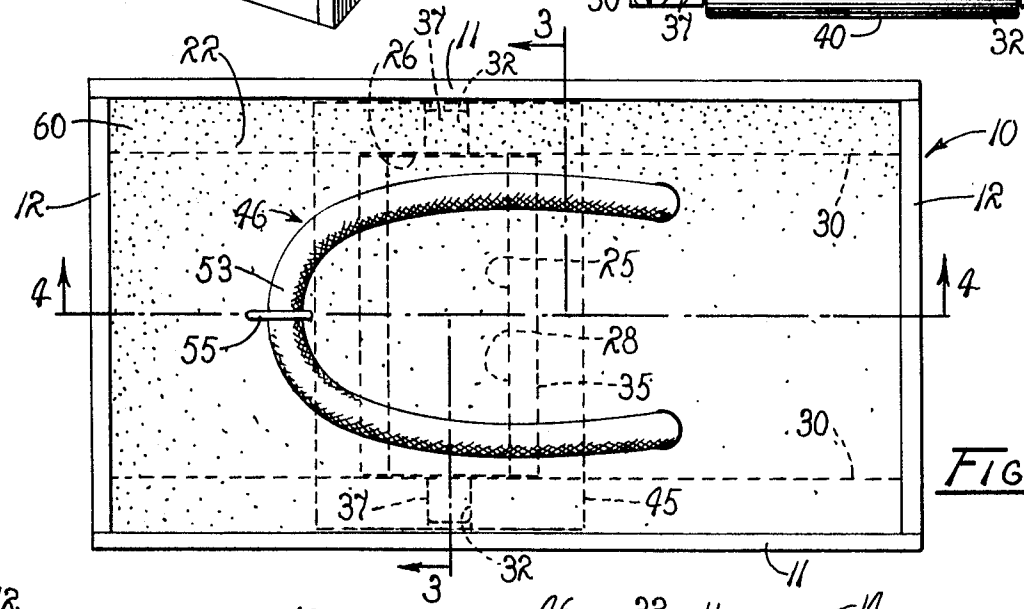


FIG. 2.

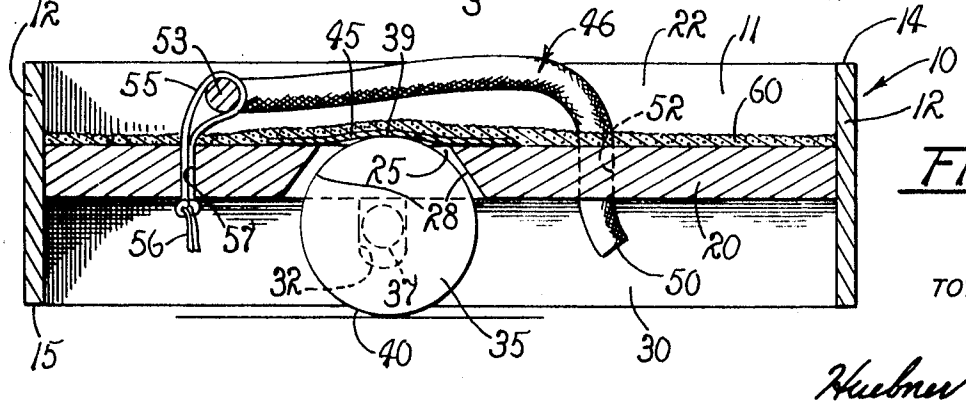


FIG. 4.

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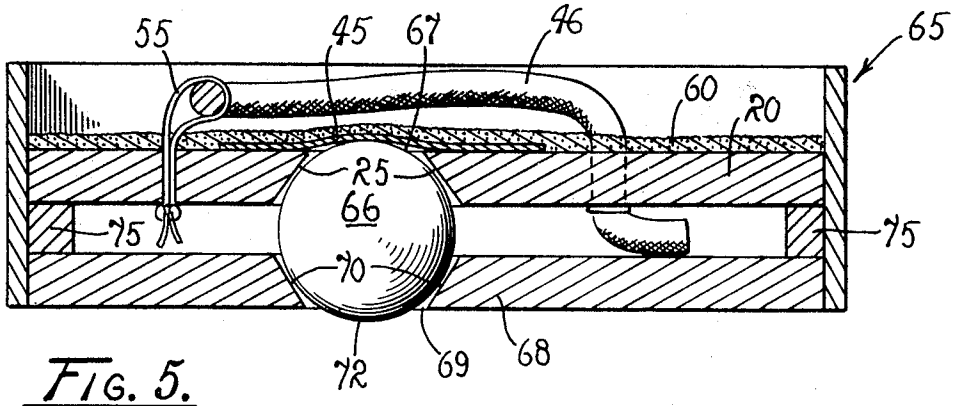

FIG. 5.

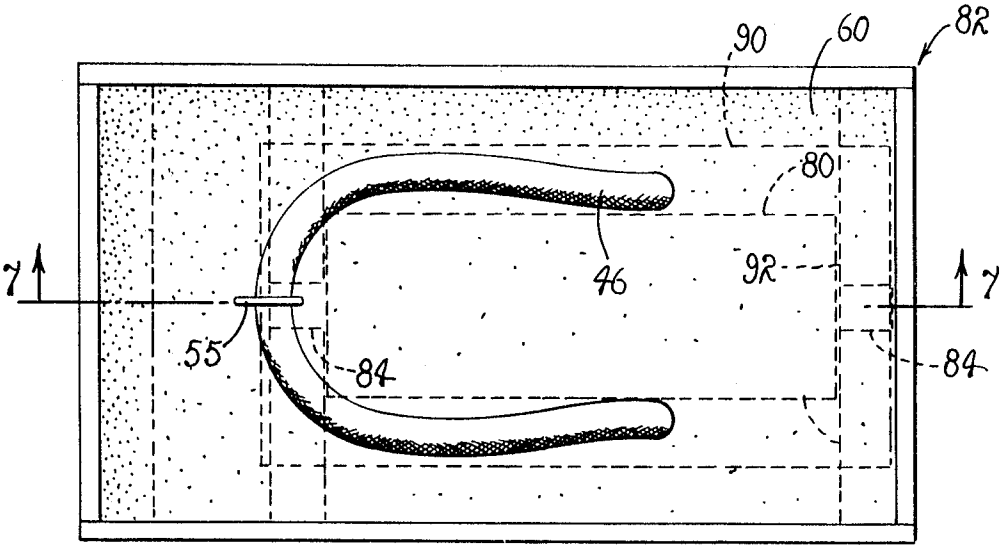

FIG. 6.

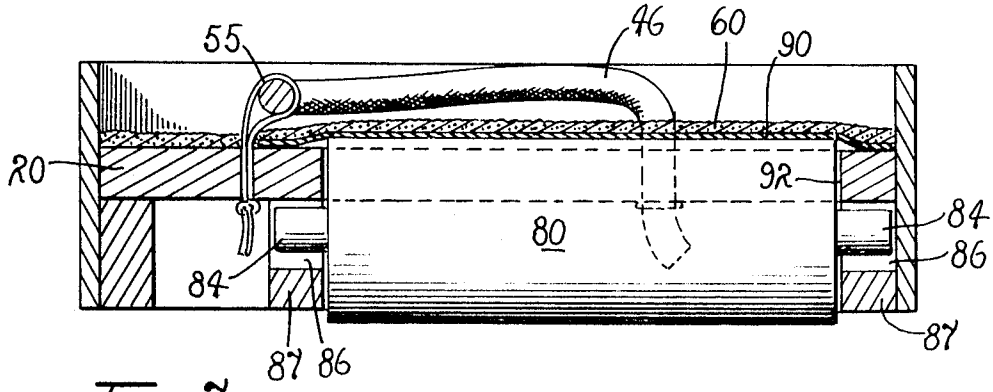

FIG. 7.

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HEALTH SHOE

BACKGROUND OF THE INVENTION

For thousands of years, the oriental civilizations have studied and have been deeply concerned with the effect of foot exercise on nerve and muscle stimulation for improved health and vigor. It is believed that the stimulation of certain nerves and muscles on the soles of the feet has a direct effect on the blood pressure, blood character, digestion, alkalosis, acidosis, and the like within the body. In any event, it is known that foot comfort and health are vital to overall health and well-being.

It has long been the practice to apply weighted shoes to the feet of a wearer to develop the muscles of the legs, back and stomach. However, walking with such shoes affords no appreciable stimulation of the nerves located closely adjacent to the soles of the feet. The present invention is believed readily to provide such desirable stimulation and is an outgrowth of the long-established historical interest and concern and modern-day recognition of the value of such exercise and foot stimulation.

SUMMARY OF THE INVENTION

Accordingly, it is an object of the present invention to provide an improved health shoe for stimulating the nerves and muscles of the feet.

Another object is to provide such an improved health shoe which is effective to massage and stimulate substantially all portions of the sole of the foot of a wearer.

Another object is to provide an improved health shoe of the character described which utilizes a ground-engaging, fast-stimulating member in combination with a flowable particulate material which is interposed the foot of the wearer and the stimulating member for distributing and transmitting the motion of the stimulating member to all portions of the sole of the foot during normal walking activities.

Other objects and advantages of the present invention will subsequently become more readily apparent upon reference to the following description and accompanying drawings.

BRIEF DESCRIPTION OF The DRAWINGS

FIG. 1 is a perspective view of a health shoe embodying the principles of the present invention, showing the foot of a wearer in dashed lines disposed thereon in a position of use.

FIG. 2 is a somewhat enlarged top plan view of the health shoe of FIG. 1.

FIG. 3 is a transverse vertical section through the health shoe, taken generally along the line 3—3 of FIG. 2.

FIG. 4 is a longitudinal vertical section though the health shoe, taken on line 4—4 of FIG. 2.

FIG. 5 is a longitudinal central vertical section through a second form of health shoe embodying the principles of the present invention.

FIG. 6 is a top plan view of a third form of health shoe embodying the principles of the present invention.

FIG. 7 is a longitudinal central vertical section of the third form of health shoe, taken along the line 7—7 of FIG. 6.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

Referring more particularly to the drawings, a health shoe embodying the principles of the present invention provides an elongated substantially rectangular frame 10. The frame is of boxlike construction and has oppositely spaced, substantially parallel side panels 11 interconnected at their ends by end panels 12. As arranged, the panels provide opposite substantially rectangular upper and lower edges 14 and 15, respectively, with the upper edges circumscribing a foot-receiving opening and the lower edges being adapted for ground engagement.

A foot-supporting panel or partition 20 is disposed within the frame 10 intermediate the upper and lower edges 14 and 15 thereof to provide an upper-foot-receiving recess 22 between it and the upper edge 14 of the frame. The side and end panels 11 and 12, respectively and the partition 20 may be constructed of any suitable rigid material such as wood, plastic, metal, or the like, which may be fabricated or cast as an integral unit, as manufacturing techniques and other considerations may suggest.

An elongated substantially rectangular opening 25 is formed in the partition 20 to provide opposite end walls 26 which terminate in inwardly spaced substantially parallel relation to the side panels 11 of the frame. The opening further includes opposite sidewalls 28 which are obliquely related to the plane of the partition in downwardly diverging relation to each other.

A pair of roller-mounting bars 30 are secured to the inner surfaces of the side panels 11 of the frame in contiguous relation with the lower edge 15 thereof and in supporting relation beneath the foot-supporting partition 20. An elongated substantially vertically disposed slot 32 is formed in each of the mounting bars outwardly adjacent to and in substantially centered relation to the opening 25 in the partition. An elongated, generally cylindrical agitation or foot-stimulating roller 35 is rollably mounted within the frame 10. The roller includes a pair of opposite axially endwardly extended axle rods 37 which are rotatably vertically slidably disposed within the slots 32 of the roller mounting bars 30. The axle rods are slightly eccentrically related to the longitudinal axis of the roller to provide a pulsating effect during rotation. The roller has an upper peripheral portion 39 extendible through the opening 25 between the end walls 26 thereof in the partition 20 and an opposite lower peripheral portion 40 which is extendible below the lower edge 15 of the frame 10.

A substantially rectangular membrane 45 of relatively thin resiliently flexible sheet material is mounted on the foot-supporting partition 20 in covering relation to the opening 25 therethrough and to the agitator roller 35. A foot-constraining stirrup constructed of an elongated flexible rope member is mounted within the foot-receiving recess 22 of the frame releasably to secure the frame to a wearer's foot 48, as shown in the dashed lines in FIG. 1. The stirrup provides opposite ends 50 which are extended through transversely spaced holes 52 in the partition 20 and an opposite looped or bight end 53. An elongated flexible tie string 55 is looped about the bight end 53 of the stirrup and has opposite ends 56 which are extended through a bore 57 in the partition and knotted therebeneath to limit upward travel of the stirrup away from the partition. A predetermined quantity of a flowable particulate material, such as sand or the like, is deposited within the recess 22 upon the foot-supporting partition 20. Leakage of such material through the opening 25 around the roller 35 is precluded bv the membrane 45.

SECOND FORM

A second form of health shoe embodying the principles of the present invention is shown in FIG 5 and has an elongated substantially rectangular frame 65 which is substantially similar to the frame 10 of the first form with the identical components thereof having the same reference numerals. The second form, however, distinguishes from the first form in its provision of a spherical ball-type agitator roller 66 having an upper periphery 67 extendible through the opening 25 in sliding engagement against the membrane 45.

The roller 66 is loosely constrained within the frame by a lower partition 68 contiguous with the lower edge 15 of the frame which has an opening 69 therethrough invertably corresponding to the upper opening 25 in the partition 20 with downwardly converging sidewalls 70 rollably capturing the roller therebetween. The roller further includes a lower peripheral portion 72 which is extendible through the lower opening 69 for ground engagement. The upper and lower partitions are maintained in their desired spaced relation by a pair of spacer blocks 75 disposed therebetween adjacent to the end panels 12 of the frame.

THIRD FORM

A third form of health shoe, shown in FIGS. 6 and 7, is similar to the first form of the invention except for the utilization of a longer agitator roller 80 which is disposed in longitudinally extended relation within a frame 82 similar in basic construction to the frames 10 and 65 of the preceding forms. The roller has a pair of oppositely extended axle rods 84 which are vertically slidably disposed within slots 86 in a pair of transversely disposed roller-mounting bars 87. An elongated substantially rectangular membrane 90 is disposed in covering relation to an opening 92 through the partition in covering relation to the roller and which is constructed of a similar material as the membrane 45 but of a somewhat larger size.

OPERATION

The operations of the described embodiments of the subject invention are believed to be clearly apparent and are briefly summarized at this point. In all three forms, the foot 48 of the wearer is disposed upon the particulate material 60 within the recess 22 of the frames 10, 65 and 82. Each frame is firmly releasably held in such position on the wearer's foot by the stirrup 46 stretching over the instep of the foot with the tie 55 extended through the space adjacent to the big toe of the wearer.

Referring particularly to the first form of the present invention, with each step of the wearer during walking, the lower periphery 40 of the roller 35 engages the ground or other support surface which moves the roller upwardly within the opening 25 in the partition 20 in agitating relation against the membrane 45. Such movement is permitted by sliding movement of the axle rods 37 of the roller upwardly within the elongated slots 32 in the roller-mounting bars 30. During such movement, the membrane flexes upwardly a predetermined distance until the upper periphery 39 of the roller engages the sidewalls 28 of the opening 25. The particulate material 60 transmits such roller agitation throughout the foot-receiving recess 22 and converts it into a massaging action against the sole of the foot 48 of the wearer. The greatest amount of agitation is, of course, directly transmitted to the ball of the foot with the particulate material having an incidental massaging effect entirely along the full extent of the sole and around and between the toes. The particulate material also adjusts to the contour of the sole of the wearer's foot better to distribute the pressures thereagainst.

The described agitation of the roller 35 can be effectively controlled by the wearer by imposing a substantially longitudinal force upon the frame 10. However, the roller only rotates in minute increments to achieve modified pressure effects. Accordingly, the roller never really acts as a wheel support for any significant travel. Upon lifting of the foot during a subsequent step by the wearer, the axle rods slide downwardly through their respective slots 32 in their roller-mounting bars 30 gravitationally to lower the roller again to extend the lower periphery thereof in depending relation beneath the lower edge 15 of the frame. The agitation within the particulate material 60 is further enhanced by the axle rods 37 being slightly eccentrically related to the longitudinal axis of the roller.

The effect produced by the second and third forms of the present invention is substantially identical to that as described for the first form. The use of the second form, as shown in Fig. 5 providing the spherical roller 66, requires, however, a greater degree of skill than that previously described. In this

form, the same agitating action is produced within the particulate material 60 but, however, the roller is permitted indiscriminately to roll about any axis and to shift transversely of the frame 65 through the elongated transversely disposed upper and lower openings 25 and 69.

In the third form of Figs. 6 and 7, with the roller 80 longitudinally extended with respect to the frame 82, a greater stimulus is provided transversely of the foot of the wearer with some transverse shifting of the frame being permitted by rotation of the roller during ground engagement. Although not shown, the roller may be disposed in any desired angular relationship to the frame to impart a slightly different massaging effect in accordance with the corrective action required by the person using the shoe.

In view of the foregoing, it is readily apparent that the structure of the present invention provides an improved health shoe for strengthening and stimulating the muscles and nerves of the feet of the wearer with overall-health-stimulating advantages. In all three forms, the particulate material provides additional weight to the frame 10 which can be varied, as desired, to impose the selected resistance to normal foot movement during walking. The particulate material further provides an energy-converting medium for massaging and stimulating the soles of the feet and is effective individually to massage the toes thereof. The particular material substantially conforms to the shape of the foot and presents continual accommodation of the entire length of the foot during each step taken by the wearer.

Although the invention has been herein shown and described in what are conceived to be the most practical and preferred embodiments, it is recognized that departures may be made therefrom within the scope of the invention.

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

1. A health shoe for stimulating and improving nerve and muscle tone throughout the body of a wearer comprising a frame having a recessed upper foot-supporting surface and an opposite lower ground-engaging surface; means releasably constraining said frame on the foot of such a wearer; a foot-stimulating member movably mounted within the frame for limited rotational and reciprocable movement between a position extending below said lower surface thereof for ground engagement and a position upwardly extended from said upper surface in massaging relation to said foot thereon during each step of the wearer; a flowable particulate material disposed within the recess in covering relation to said foot-stimulating member and in conforming relation to the foot of the wearer so that said movement of the member is transferred to the foot of the wearer through said particulate material, said frame including a partition forming a bottom wall for said recess and having an opening therethrough; a membrane member constructed of a relatively thin sheet of resiliently flexible material mounted on the partition in masking relation to said opening to preclude leakage of said particulate material therethrough with a portion of said foot-stimulating member being extendible upwardly through said opening in flexing relation to said membrane member for agitating said particulate material around the foot of the wearer, said foot-stimulating member comprising a substantially spherical ball; and means mounting the ball within the frame for rotation in any direction and for limited reciprocable movement through said opening in the partition and in depending relation from said lower surface of the frame.