May 7, 1963 T. P. STEWART 3,088,458

FOOT EXERCISING APPLIANCE

Filed March 8, 1962

Fig. 1

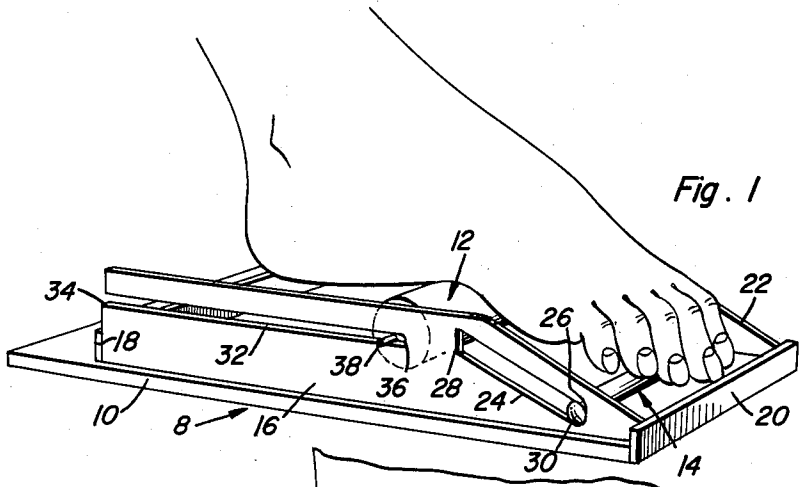


Fig. 2

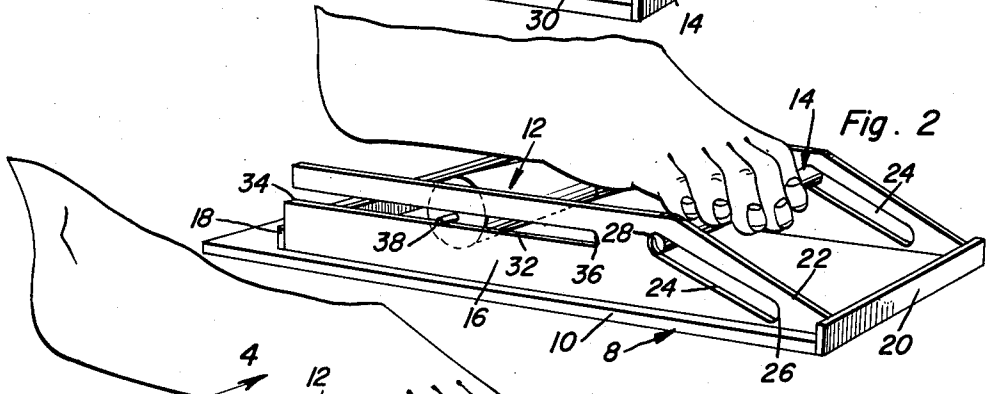


Fig. 3

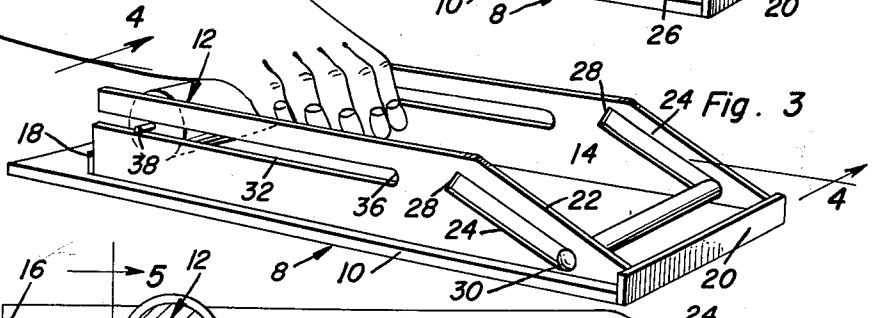


Fig. 4

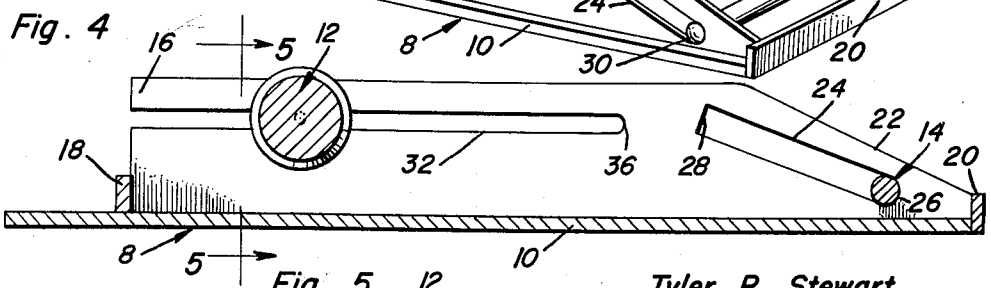
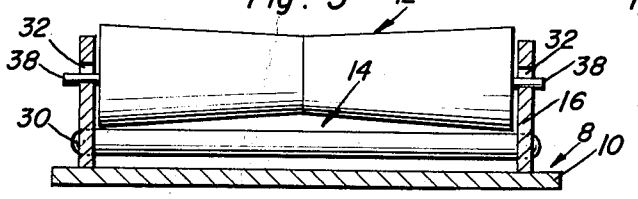


Fig. 5



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United States Patent Office 3,088,458 Patented May 7, 1963

3,088,458
FOOT EXERCISING APPLIANCE

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Filed Mar. 8, 1962, Ser. No. 178,385
7 Claims. (Cl. 128—57)

This invention relates to certain new and useful improvements in foot massaging and exercising appliances expressly, but not necessarily, designed and functionally adapted for home use and has to do with an improved appliance for effectually exercising and strengthening the toes or digits and the ligaments connecting the digits, the metatarsal and longitudinal arches, and the calcaneum of the user's foot.

Briefly, the herein disclosed device or appliance comprises a portable base which is constructed to support two rollers, one large and the other one small. These rollers are rotatably and slidingly or shiftably mounted atop the base. The primary or larger roller when actuated by the user's foot travels forwardly or rearwardly in a desired horizontal plane. The smaller toe-controlled roller also travels rearwardly and forwardly but in an inclined plane, said rollers being spaced apart in parallel relationship and the small roller being stationed forwardly of the large roller. Thus, a simple, practical, economical and easy-to-use appliance is had. And, despite its utmost simplicity in design and construction it well serves the exercising purposes for which it is intended.

With the appliance constructed as above set forth, the foot can be placed on the primary roller and pushed forwardly until the roller and foot assume a position which allows the foot to tilt and the toes to be moved downwardly in a manner to catch hold of and pick up the small roller for action. Then, when the foot is moved back again toward the body the toes are manipulated to release the small roller whereupon the latter, under the action of forces of gravity rolls down in inclined slots provided therefor and resumes its normal "down" position. By practicing and mastering this simple progressive procedure and repeating it, the desired massaging, invigorating and exercising result is attained. The toes are exercised by clutching and maneuvering the small roller toward the large roller. The ligaments are rejuvenated and circulation is activated by the conjoint sequential use of both rollers and the rolling action along the planta.

Stated more explicitly and observing the appliance from a structural point of view, novelty is predicated on forward and rearward rollers mounted in slots provided therefor in flanges supported on a base, a simple panel, for example. The rollers are coordinated to coact in a manner which is self-evident. By resorting to simple easy-to-follow steps and experimentation the mode of use of the appliance is soon learned with little or no effort and with the result that daily use of the appliance meets the needs of the user.

These together with other objects and advantages which will become subsequently apparent reside in the details of construction and operation as more fully hereinafter described and claimed, reference being had to the accompanying drawing forming a part hereof, wherein like numerals refer to like parts throughout, and in which:

FIGURE 1 is a view in perspective of a foot exercising appliance constructed in accordance with the principles of the instant invention and which shows the median portion or arch of the user's foot poised on the primary roller with the toes or digits readied to clutch and pick up the secondary or auxiliary roller;

FIGURE 2 is also a view in perspective showing the large roller moved from right to left and showing the uppermost position of the auxiliary toe-actuated and exercising roller;

FIGURE 3 is likewise a view in perspective which

shows the released position of the auxiliary roller with the roller assuming its normal or down position and further showing the sole of the foot being exercised on the primary roller at the left;

FIGURE 4 is a longitudinal central sectional view taken on the plane of the longitudinal line 4—4 of FIG. 3, looking in the direction of the arrows and with the foot removed; and

FIGURE 5 is a cross-section on the vertical line 5—5 of FIGURE 4.

Referring now to the figures of the drawing with the aid of reference numerals it will be noted that the portable base, as an entity, is denoted by the numeral 8. This base and also the companion rollers may be made of suitable lightweight but sturdy material. Experimental models have been satisfactorily made of wood and plastic materials, it being within the purview of the concept, of course, to use such materials as may be decided upon by the manufacturer. In any event the base preferably comprises a rectangular flat bottomed panel 10 of a length which may be said to be greater than the length of the average user's foot and also of a width greater than the width of the widest part of the foot. The freely rotatable slidable and removable large or primary roller is denoted by the numeral 12 and the complemental smaller auxiliary roller by the numeral 14. The roller 12 is shiftable back and forth in a horizontal plane parallel to the top of the panel. The roller 14 operates in an inclined plane, the rollers being in spaced-apart parallelism with the roller 14 located at the forward or front end of the base. A satisfactory means of mounting the rollers in their respective relationship comprises a simple frame which is also rectangular in plan and comprises a pair of longitudinal vertical spaced parallel side members or flanges 16, a transverse crosspiece 18 attached to the rearward ends thereof and a similar transverse crosspiece 20 attached to the forward ends. The forward end portions of the flanges or side members are decreased in cross section forwardly and downwardly providing inclined edges 22. These inclined portions are provided with a pair of opposed inclined slots 24 whose lower or forward ends are denoted at 26 and rearward ends at 28. The obliquity or degree of inclination will be approximately that illustrated in the drawing. The roller 14 is arranged between these flanged portions and the ends are suitably headed and journaled in the slots as at 30. The flanges proper are provided with opposed horizontal parallel slots 32 the rearward or lefthand end portions of which are open as at 34. The forward end portions terminate at 36 rearwardly of the slots 24. The upper ends 28 of the slots 24 are in a plane which is approximately level with the plane of the slots 32. The roller 12 is provided on end portions thereof with suitable journals 38 which are rollable and slidable in the slots 32 in an obvious manner. It will be observed that with this construction the roller 12 may be removed from the slots 32 by way of the rearward ends 34. This construction is desirable inasmuch as it permits one to utilize rollers of different diameters making it possible to remove the roller 12, for example, and to replace it with a similar roller (not shown). Then, too, it is within the purview of the invention to add another roller similar to the roller 12 (not shown) whereby there will be two parallel companion rollers in the slots 32. The vertical height of the crosspiece 18 is such that its upper edge terminates below the plane of the slots 32 making it possible to easily remove and replace the roller 12.

The forward ends 36 of the slots 32 limit the forward travel or movement of the roller 12. The lower ends 26 of the slots 24 limit the downward movement of the roller 14. The normal starting or "down" position of the roller 14 is shown in all of the views except FIG. 2. In the last-

named figure the roller **14** is shown in its uppermost or rearwardmost position which is spaced forwardly of and positions the roller in a plane approximately level with the turning axes of the roller **12**.

It will be evident that when the roller **14** has reached the rearwardmost position as shown in FIG. 2 and when it is released by the toes of the foot, the roller gravitates down the slots to resume its original starting position.

It will be evident from FIG. 1 that when the roller **12** is in the position there shown the foot is fulcrumed thereon and the forward portion is tilted down until the toes or digits are in a position to clutch the roller **14**. Then as the foot is moved from right to left by comparing FIG. 1 with FIG. 2, it will be evident that the roller **14** is pulled upwardly in the slots **24** in a manner to exercise the toes. This step in the use of the device is referred to as the toe-clutching roller pickup action. Experience has shown that by using the rollers **12** and **14** in the manner illustrated in FIGS. 1 to 3, inclusive, the digits or toes are strengthened along with the ligaments connecting the digits. Also, the metatarsal and longitudinal arches and calcaneum are exercised and massaged in a manner to invigorate the foot, promote circulation and to attain the overall result desired.

The foregoing is considered as illustrative only of the principles of the invention. Further, since numerous modifications and changes will readily occur to those skilled in the art, it is not desired to limit the invention to the exact construction and operation shown and described, and accordingly all suitable modifications and equivalents may be resorted to, falling within the scope of the invention as claimed.

What is claimed as new is as follows:

1. A portable foot-manipulated and governed appliance designed and functioning to exercise and strengthen the digits and ligaments connecting the digits, the metatarsal and longitudinal arches and calcaneum comprising: a horizontal base, said base embodying a panel having opposed upstanding lengthwise flanges provided with horizontal slots parallel with the horizontal plane of said panel, a roller positioned between said flanges and having end-journals slidingly and rotatably mounted in their respective slots, said slots terminating short of a forward extending portion of said panel, additional slots provided in forward portions of said flanges beyond the first-named slots, and a second roller positioned between said forward portions and having its ends slidingly and rotatably mounted in said additional slots.

2. The combination of claim 1, and wherein the additional slots are inclined forwardly and downwardly, said first-named roller being appreciably greater in diameter than the second-named roller.

3. The structure according to claim 2, and wherein the rearward ends of the first-named slots open through the rearward ends of said flanges, whereby to permit the first-named roller to be removed and replaced with another similar roller or, if desired, to allow a third roller to be added in a manner to complement the first-named roller.

4. A foot exercising appliance comprising, in combination, base means having a relatively stationary horizontal portion and provided with upstanding component portions provided with opposed coplanar elongated slots, a primary roller interposed therebetween and having end journals which are slidable and rotatable in their respectively cooperating slots and susceptible to foot control movement back and forth in a horizontal plane on said relatively stationary part, and a complemental auxiliary

roller positioned forwardly of the primary roller and also mounted on said base for free rotation and movement back and forth independently of and toward and from the primary roller, said rollers being disposed and cooperating in spaced-apart parallel relationship, said primary roller serving to support and poise the foot proper, and the auxiliary roller functioning to support and being operable by the toes of the foot, said auxiliary roller being of a diameter less than the diameter of the primary roller and being operable solely by the toes of the foot in a manner to exercise and strengthen the toes and ligaments connecting the toes, the metatarsal and longitudinal arches and the calcaneum, said auxiliary roller having its ends journaled for rotation and traveling movement in opposed inclined slots provided therefor on a forward end portion of said base means.

5. The structure according to claim 4, and wherein said first-named slots are of a predetermined length, said primary roller being constrained by cooperating forward closed ends of said slots to travel in a horizontal plane above and constantly parallel to the horizontal plane of the relatively stationary part of the base means and being adapted to be shoved back and forth by the foot resting and supported thereon, said auxiliary roller being limited by the action of the position and length of said inclined slots to travel from a given topmost level in alignment with the axis of rotation of the primary roller to a lowermost starting level in a plane below the horizontal traveling plane of the primary roller.

6. The structure according to claim 5, and wherein the forwardmost stop position of the primary roller is close to but spaced slightly rearward of the rearwardmost position of the auxiliary roller.

7. A portable foot-manipulated and governed appliance designed and functioning to exercise and strengthen the digits and ligaments connecting the digits, the metatarsal and longitudinal arches and calcaneum comprising: a horizontal base panel having roller supporting means, the latter provided with coplanar elongated oppositely disposed slots, a primary roller having end journals journaled for free rotation in their respective slots and designed and adapted for forward and rearward traveling movement atop said base in a horizontal plane parallel to said panel, said primary roller functioning to support the foot and being rolled forwardly and rearwardly by the foot resting thereon, the forward motion of said primary roller being limited but continuing to rotate freely so that the forward portion of the foot may ride forwardly of the roller's position and so that said portion and the digits thereon may then be permitted to tilt downwardly toward the panel, and means mounted on the forward portion beyond the primary roller for releasably supporting the digits, said means being actuatable and controllable at will by the digits and serving to exercise and strengthen the digits, said means comprising a second roller auxiliary to the primary roller, said auxiliary roller being of a cross-section appreciably less than the cross-section of the primary roller, being parallel to the primary roller and shiftably turnable in opposed inclined slots starting with the axis of rotation of the primary roller and terminating therebelow in an at rest down position just above the plane of the top of said base panel.

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