

Feb. 16, 1943.

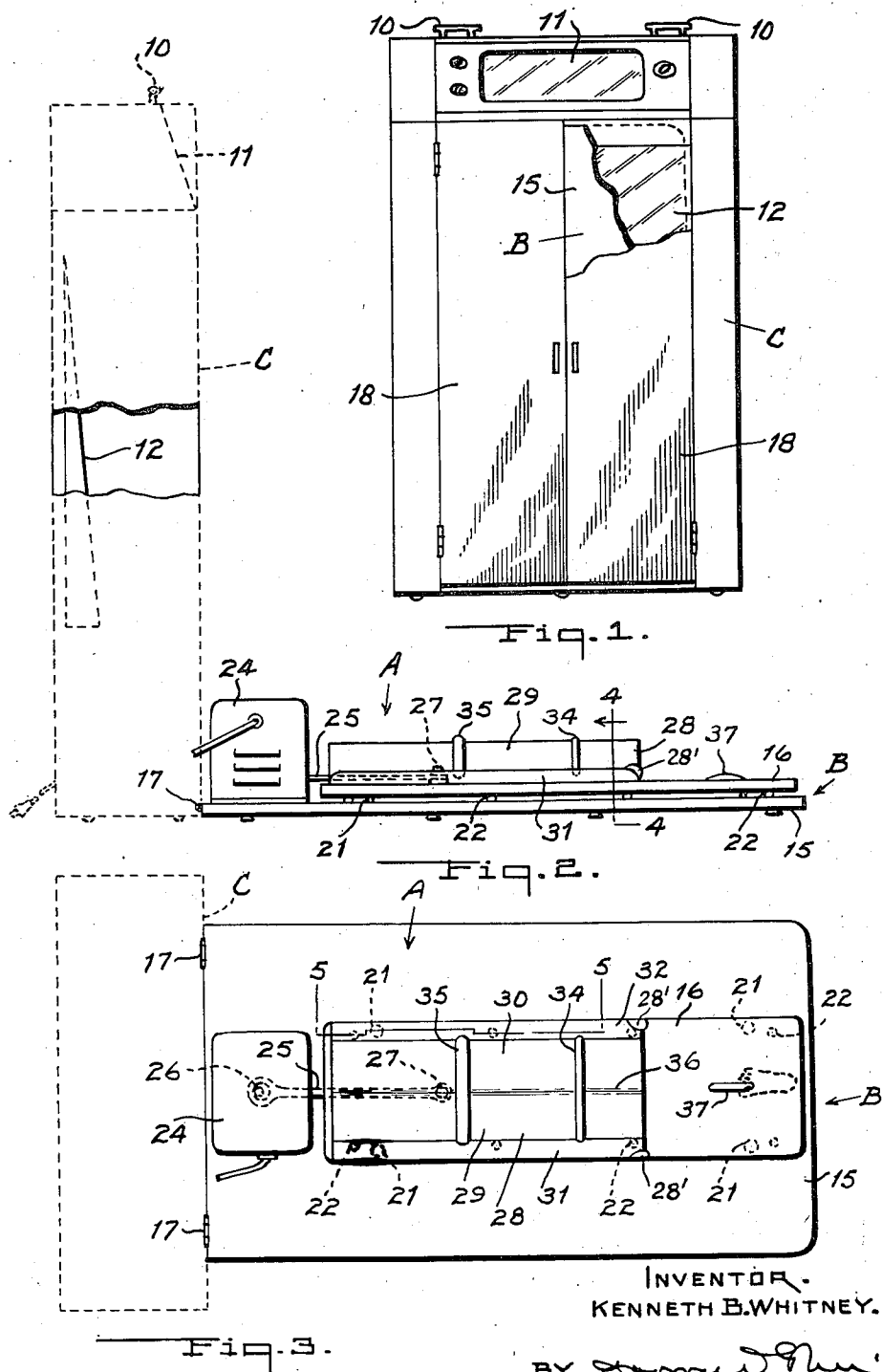
K. B. WHITNEY

2,311,274

FOOT EXERCISING APPARATUS

Filed Oct. 10, 1940

2 Sheets-Sheet 1



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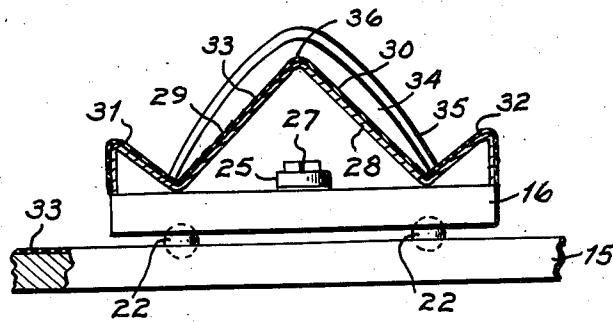


Fig. 4.

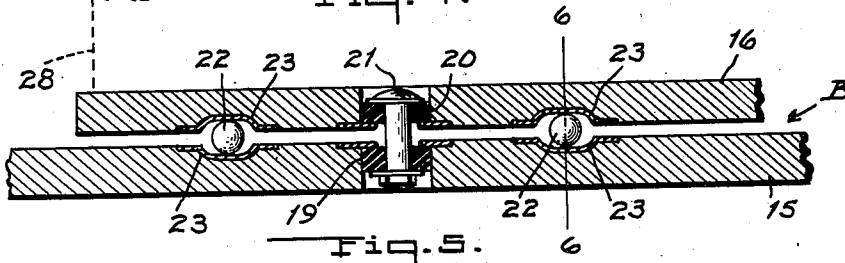


Fig. 5.

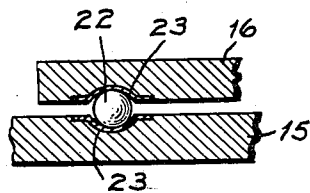


Fig. 6.

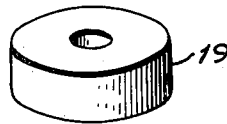


Fig. 7.

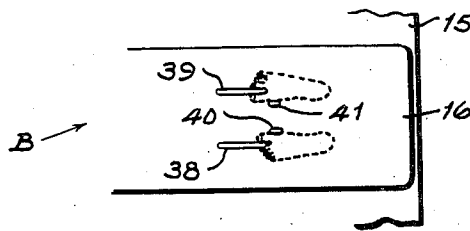


Fig. 8.

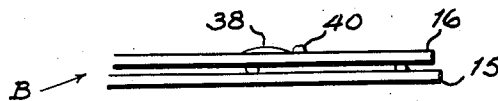


Fig. 9.

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UNITED STATES PATENT OFFICE

2,311,274

FOOT EXERCISING APPARATUS

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In Great Britain October 14, 1939

4 Claims. (Cl. 128—33)

This invention relates to exercising apparatus and has more particular reference to apparatus for exercising the feet, and especially is it an improvement over my Patent No. 2,189,693.

Treatment of foot trouble is generally recognized as correcting and in many instances curing obstinate and frequently obscure physical debilities which are attributed to conditions not directly associated with foot trouble, yet with proper adjustment and exercise of the feet congestion and other conditions of ailment not ordinarily attributable to foot trouble, right themselves and the human system functions normally and the complaint or debility removes itself automatically.

It is observed that the present invention differs from my aforementioned patent by providing a vibratable platform with novel means for resiliently connecting the platform to a base member so that the feet are acted upon not only by weight of body pressure but by vibratory action as well.

The present invention then, broadly speaking, contemplates treating weak, defective and otherwise abnormal foot conditions by gently articulating and otherwise exercising the bones, muscles, tendons and other parts of the feet so that they become properly adjusted and flexed thus strengthening the muscles, easing the tension of the tendons, relieving nerve pressures and improving circulation with the result that not only the feet but the system as a whole is toned up and the general health materially improved.

One of the objects of the present invention therefore is to provide a device of this character wherein defective feet such as maladjustment of the bones, weak or fallen arches and similar foot conditions are effectively treated.

Another object of the present invention is to provide a device of this character wherein the cuboid, cuneiform, metatarsal and other related bones of the feet are subjected to corrective adjusting exercise and treatment.

A further object of the invention is to provide a device of this character which induces a vibratory action in the device during the exercising and treatment of the feet.

A still further object of the invention is to provide apparatus of this character which imparts vibratory motion to the elements of the foot exercising apparatus.

Yet a further object of the present invention is to provide apparatus of this character which is simple in structure yet rugged in nature and

one that will the more satisfactorily perform the functions required of it.

Having regard to the foregoing and other objects and advantages which will become apparent as the description proceeds, the invention consists essentially in the novel combination and arrangement of parts hereinafter described in detail and illustrated in the accompanying drawings in which,

Fig. 1 is a front elevation of an embodiment of my present invention embodied in cabinet form.

Fig. 2 is an enlarged side elevational view of the apparatus shown in Fig. 1, the cabinet being illustrated mainly in dotted lines and the foot exercising apparatus being arranged in an operative foot treating position.

Fig. 3 is a view similar to Fig. 2 shown in plan.

Fig. 4 is an enlarged sectional elevation taken on the line 4—4 of Fig. 3.

Fig. 5 is an enlarged section taken on the line 5—5 of Fig. 3.

Fig. 6 is a section taken on the line 6—6 of Fig. 5.

Fig. 7 is an enlarged perspective view of one of the resilient connector members, and

Figs. 8 and 9 are fragmentary plan and side elevational views respectively of the apparatus in modified form.

Referring now to the drawings wherein like letters and numerals of reference represent similar structure in the several illustrations, the letter A designates the foot treating and exercising apparatus generally, the letter B the supporting medium for the apparatus and the letter C a cabinet in which the apparatus may be housed or enclosed.

The cabinet C is of suitable structure and conveniently provided with a window member 11, a mirror member 12 and a pair of handle grips 10 which are preferably mounted on the cabinet top, all of which will be hereinafter more fully referred to.

The structure designated by the letter B as here shown includes a base member 15 superimposed upon which is a platform member 16. The base member 15 it will be understood may be hingedly or otherwise connected to the cabinet as is indicated at 17 while for compactness and portability the foot exercising and treating apparatus as a whole may conveniently be enclosed within the cabinet through the medium of suitable doors 18. When the apparatus is required to be placed in operation, the doors 18 are swung open, the member B lowered to a horizon-

tal position or to a position at an angle to the horizontal as circumstances and occasion may require and the prime mover connected with a suitable source of energy supply when the apparatus is ready for operation.

Relatively, the member B is positioned close to the floor or platform in normal operative position and preferably the base 15 is larger in size than the platform 16, thus a person requiring treatment finds no difficulty in stepping first from the floor on to the base member 15 and from there it is an easy convenient step to the platform 16 where exercise and treatment is obtained.

Structurally, one of the features of the present invention is the resilient connection between the member 15 and the platform 16. The connection referred to may take any suitable form and in the present instance I have shown practical means in the nature of connector members 19 and 20 preferably embodying materials possessing the characteristics of resiliency, (see Figs. 2, 5 and 7). The members 19 and 20 are shown in paired form and carried by the base and platform members respectively and arranged in spaced, opposed relationship as more particularly illustrated in Fig. 5 and connected through the medium of a bolt 21 or other similar device.

In order to maintain the platform 16 in spaced relation to the base member 15, I provide a series of spacer members 22 preferably in spheroid form and preferably, like the members 19 and 20, possessing the characteristics of resiliency. These spheroids or ball shaped spacer members may be arranged at suitable spaced intervals between the members 15 and 16 and are adapted to engage the cup-like sockets 23 which are mounted in opposed, spaced relationship in the base and platform members respectively (see Figs. 5 and 6). The sockets 23 it will be observed appear substantially oval in plan and thus reflect provision for greater longitudinal movement than otherwise. However, movement of the platform 16 with respect to the base member 15 is not to be implied as being restricted to longitudinal movement, rather one platform or member is movable with respect to the other longitudinally, transversely or vertically, as a matter of fact the resilient connection enables the member 16 to be movable universally.

A further novel feature of the invention is the imparting of vibratory action or movement to the platform 16. This means includes an electric motor or other suitable prime mover 24, provided with a rocker arm or the like 25. The prime mover is mounted on the base 15 and while one end of the rocker arm is connected to the shaft of the motor through an eccentric as at 26, the other end of the rocker arm is connected to the platform 16 as indicated at 27.

From what has already been described it will be seen that the application of power to the prime mover will cause the arm 25 to operate with a succession of rapid reciprocative movements, in turn, imparting rapid back and forth movement to the platform with the resultant vibration being imparted to the platform 16 and associated parts.

Referring now to a further feature of the invention, this includes a foot receiving member 28 which may be fixedly secured to the platform 16 in any suitable manner. The member 28 corresponds in form to substantially an inverted V in cross section and as more particularly observed in Fig. 4 is provided with angularly disposed and appreciably sloping, foot receiving sur-

faces 29 and 30. Adjacent the outer longitudinal edges of the member 28 I provide abutting walls 31 and 32 which are designed to form bracing members for the feet during treatment. As more especially indicated at 28' in Figs. 2 and 3, the outer corners of the bracing walls may be provided with ball like pads for exercise of certain parts of the feet requiring special consideration. Here it may be said that in practice it has been found beneficial to apply a covering of relatively thin yet appreciably resilient rubber or the like 33 to the surfaces contacted by the feet. Thus apart from providing anti-slipping means for the members 15 and 16 where the foot contact is effected, the surfaces are provided a cushioning medium that eliminates the harsh jar ordinarily accompanying non-resilient structures.

Arranged in spaced relation to one another and extending from side to side of the foot receiving surfaces 29 and 30 are rib members 34 and 35. These rib members protrude above the normal surface of the foot receiving members and are relatively hard in structure yet somewhat resilient in nature. The number, size, arrangement and structure of the rib members may be varied and while I illustrate the present rib members as differing in size and decreasing in thickness toward the abutting walls, it will be understood they may take other forms, for example, they may increase in size toward the abutting walls and decrease in size toward the medial ridge 36, all of which is to be construed as being within the purview and scope of the invention. Additionally, the members 34 and 35 may be formed as an integral part of the foot receiving surfaces or if desired they may be detachably connected.

The contiguous arrangement of the foot receiving surfaces 29 and 30 and the outward and downward sloping thereof at an appreciable angle to the horizontal plays an important role in the effectiveness of the instant invention. One of the reasons for this is that such arrangement induces the person receiving exercise and treatment to stand with the feet in spaced relation to one another and in a sloping position with the soles of the feet turned somewhat upwardly so that they tend to face toward one another. This particular posture or stance causes somewhat of a bowing of the limb extremities resulting in extensive relaxation of muscles thus enabling the exercise, adjustment and treatment to be more effective, thorough and efficient.

Located on the platform 16 adjacent the member 28 is a further rib member 37. This further rib member as particularly observed in Fig. 2 is substantially arcuate in form as seen in elevation and protrudes above the platform level and is designed more especially where treatment of the anterior arch is desired as will be later referred to.

In the modification form as illustrated in Figs. 8 and 9, the platform 16 is provided with a pair of rib members 38 and 39 which conform to the arcuate form of the rib member 37 and which also protrude above the normal level of the platform. Adjacent these rib members I provide protruding abutment members 40 and 41. Primarily, this arrangement is designed for the treatment of foot conditions commonly known as bunions as will be hereinafter more fully explained.

Operation

For exercise and treatment of the feet, the prime mover is operatively connected with a

suitable source of power and as previously explained the prime mover causes the arm 25 to move the platform 16 and associated parts with a succession of rapid back and forth movements, thus with the resilient, yieldable connection or mounting of the platform already mentioned, vibration is imparted to the platform 16 including its associated parts.

The person desiring or requiring foot exercise and manipulation now steps upon the base 15 and from there places both feet upon the vibrating platform 16 where he or she may stand for a moment, the while gripping the handle members 10 for steadying purposes if necessary. After the preliminary moment on the platform 16 the next advance is to place the feet on opposite sides of the slopingly arranged foot receiving surfaces 29 and 30 of the member 28. In the case of weak or fallen arches, the arches of the feet are preferably placed upon the smaller of the rib members where, according to the pressure imposed by the individual, the exercise and treatment may be gentle or strenuous according to physical well being. The feet will of course be moved to different relative positions during the exercise and treatment in order that corrective adjustment and treatment may be imparted to the entire arch. As exercise of the feet progresses the individual may determine the exact and correct positioning of the feet by glancing through the window 11 where the mirror 12 reflects the instant foot positions, this without unnecessary bending or body movement. During the period of exercise, the platform 16, member 28 and all associated parts have been caused to vibrate through the medium already described so that foot adjustment, manipulation and exercise is effected not only by the rib members and other exercising devices but by the addition of the vibratory action which is imparted to the elements concerned. Exercise and treatment of the feet through the rib members and associated parts is thus two-fold and imparts corrective adjustment, massage and exercising manipulation to the tendons, muscles, bones, ligaments, joints and other related parts of the foot structure and through them the related organisms of the legs, back, body and other co-related parts of the anatomy.

Where exercise and treatment of the anterior arch is desirable or required, it is preferably effected through foot contact with the rib member 37. This particular treatment consists in first placing the foot in the position shown in Fig. 3 with the rib member between the first and second toes where it acts upon the bones of the anterior arch according to the pressure applied by the individual. When this portion of the foot has been sufficiently treated the foot is moved over so that the rib member is now between the second and third toes where the adjustment, exercise and treatment is continued. In this manner exercise progressively continues until the entire anterior arch has been subjected to exercise and corrective treatment.

Apart from the presently indicated treatment of the anterior arch, defective conditions such as hallux valgus, commonly known as bunions, may be treated by the modified form of apparatus disclosed in Figs. 8 and 9. In this latter case that portion of the foot upon which the bunion appears is placed against the abutment member 40 or 41 as the case may be while the first and second toes are placed in a position of straddle over the arcuate rib member which con-

tacts the anterior arch at this point. Gentle, medium or heavy pressure by the individual according to physical condition, causes the arcuate member to press upwardly so to speak so that the joint at the head of the great metatarsal bone is subjected to corrective manipulation and adjustment.

Simultaneous with this application of pressure the individual gently turns the foot sideways so that while the dislocated joint is being correctively manipulated, the tension upon the strained muscles, tendons and ligaments is eased and by continued application of correction they become strengthened, supple and revitalized until eventually the joint is restored to normal position and the toe to normal alignment. It is not of course to be construed that one simple adjustment is sufficient to effect the above mentioned result. The number of treatments and adjustments would be governed largely by the nature and condition of the defective member and the physical condition of the individual. The corrective manipulation and treatment just described may be defined in itself as two-fold yet there is the additional feature of the vibration which, during the adjustment gently applies a massage to the effected parts simultaneous with the adjustment. Thus the corrective adjustment and treatment is in fact three-fold in that the rib member gently eases the dislocated joint into proper position, the abutment member in combination with the rib member enables the toe to be eased back to normal while the vibratory action gently massages the affected parts, breaks down lesions and strengthens and revitalizes the entire joint structure.

The invention disclosed may be embodied in other specific forms without departing from the spirit or essential characteristics thereof and the present disclosure is therefore to be considered in all respects as illustrative rather than restrictive and all changes coming within the meaning and range of equivalency of the claims are intended to be embraced therein.

What I claim as my invention is:

1. In a device of the character described, a base member and a platform member, the said base and platform members being provided with spaced receiving sockets arranged in opposed relationship to one another for the reception of spacer means, spacer members mounted in the sockets and movable therein, means for resiliently connecting the platform to the base member comprising resilient members mounted in the base and platform members respectively in spaced relationship to one another, means connecting the spaced resilient members to resiliently connect the platform to the base member, a foot receiving member mounted on the platform having opposed foot receiving surfaces slopingly arranged at an appreciable angle to the horizontal from a medial ridge, spaced rib members extending from side to side of the foot receiving surfaces and protruding thereabove and drive means operatively connected to the platform for imparting vibration to the said platform.

2. In a device of the character described, a base member and a platform member, the said base and platform members being provided with spaced receiving sockets arranged in spaced register for the reception of spacer means, spherical spacer members mounted in the said sockets and operably movable therein adapted to maintain the platform in spaced relationship to the

base, means for connecting the platform to the base member comprising a series of resilient members mounted in the platform and base members respectively in spaced relationship to one another, bolt means for connecting the spaced resilient members to resiliently connect the platform to the base member, a foot receiving member mounted on the platform having opposed foot receiving surfaces slopingly arranged at an appreciable angle to the horizontal from a medial ridge, rib members mounted on the foot receiving surfaces and extending from side to side thereof and arranged in spaced relationship to one another sufficient to accommodate foot

lengths and drive means operatively connected to the platform for imparting vibration to the said platform.

3. A device as set forth in claim 1 wherein the receiving sockets are provided with relatively shallow cup-like receptacles substantially oval in plan to permit movement of the said spacer members within the receptacles.

4. A device as set forth in claim 2 wherein the said rib members extending over the foot receiving surfaces vary in size and protruding height respectively with regard to one another as from the medial ridge.

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