Sept. 14, 1965 J. H. STROOP 3,205,888

EXERCISE AND VIBRATION MACHINE

Filed March 1, 1963 2 Sheets-Sheet 1

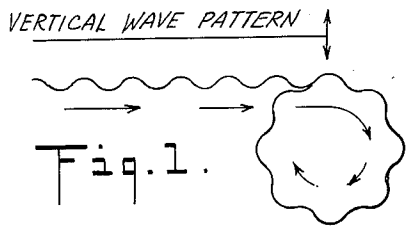
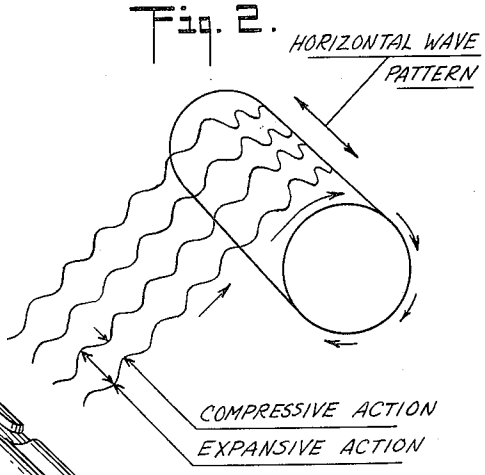


Fig. 1.

Fig. 2.



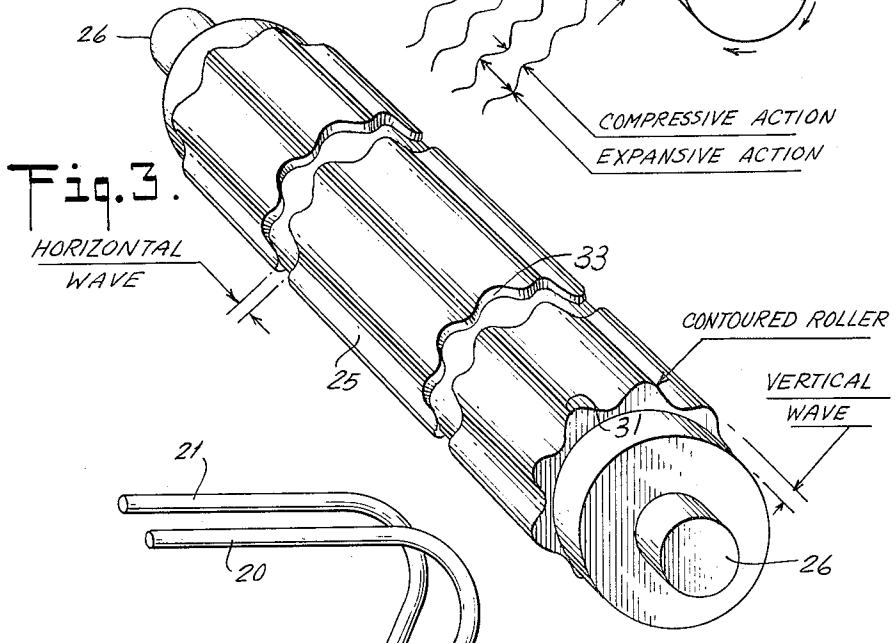
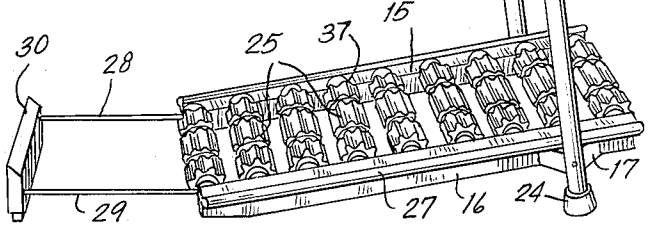


Fig. 3.

Fig. 4.



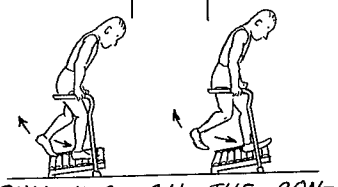
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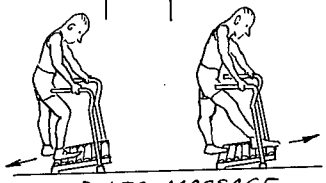
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Fig. 5.



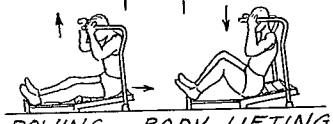
RUNNING ON THE CONTOURED VIBRATION DECK

Fig. 6.



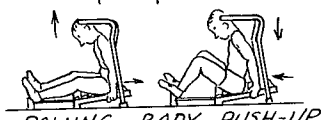
FOOT & LEG MASSAGE

Fig. 7.



ROWING, BODY LIFTING & REAR MASSAGE

Fig. 8.



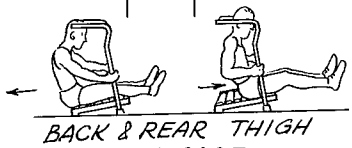
ROWING, BODY PUSH-UP & MASSAGE

Fig. 9.



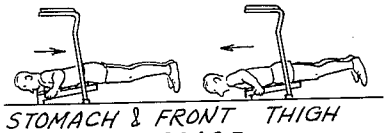
SIDE THIGH CONTOUR MASSAGE

Fig. 10.



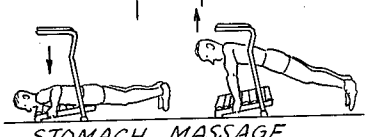
BACK & REAR THIGH MASSAGE

Fig. 11.



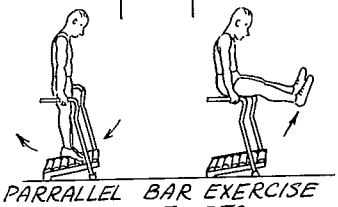
STOMACH & FRONT THIGH MASSAGE

Fig. 12.



STOMACH MASSAGE & BODY PUSH-UP

Fig. 13.



PARRALLEL BAR EXERCISE —LEG LIFT, ETC.

Fig. 14.



PARRALLEL BAR EXCERCISE —CHINNING, ETC.

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United States Patent Office 3,205,888 Patented Sept. 14, 1965

3,205,888

EXERCISE AND VIBRATION MACHINE

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Filed Mar. 1, 1963, Ser. No. 262,133
6 Claims. (Cl. 128—57)

One object of this invention is to provide a particularly rugged but relatively light and highly versatile exercise machine peculiarly adapted to meet the highly desired and necessary demands of an ever increasing sedentary population.

A variety of machines have hitherto been produced. Some are power-driven, some self-operated, but most are adapted primarily for a single purpose. Examples of such machines are those of the bicycle type, rowing machines, machines for weight lifting, massaging machines, and the like. Most such machines have been heavy and expensive and are not adapted for accomplishing several independent objectives.

Running or walking has been the best of all exercises, and the exercise machine of this invention not only provides for ease of running or walking but, coupled with this in the same machine, provides for many other types of exercises, such as for example rowing and various calisthenics, together with the equivalent of chinning bars and horizontal bars, all so combined that the machine may be easily carried from place to place, requires a minimum amount of space for the performance of the exercises and in an unusual and novel manner provides for the conditioning of the body, reduction of weight, and the like.

Another important feature of the exerice machine of this invention arises from the fact that it is peculiarly adapted for rehabilitation which goes far beyond the normal conditioning or building of an uninjured body. The large number of patients who are confined to rehabilitation centers and hospitals indicates the need for the machine of the present invention, by means of which there are therapeutic benefits to rebuild the body, supply muscular function and restore the coordination and the rebuilding of bodily health.

The versatility of the machine of this invention is clearly exemplified in the accompanying drawings, to which reference will now be had.

FIGURE 1 is a partially diagrammatic end view of one of the elements of my machine in which only the vertical vibratory pattern is shown.

FIGURE 2 is a partially diagrammatic view of one of the elements of the machine in which only the horizontal vibratory pattern is illustrated.

FIGURE 3 is a perspective view of a roller which constitutes one of the elements of the machine and which is formed to provide both for the vertical vibratory motion of FIGURE 1 and the horizontal vibratory motion of FIGURE 2.

FIGURE 4 is a perspective view of a complete machine in which the roller elements of FIGURE 3 are incorporated.

FIGURES 5 to 14, inclusive, are perspective views including the figure of a man illustrating the numerous different exercises and massage treatments which may be performed with advantage on the machine of this invention.

Having special reference to FIGURE 4, the machine which embodies my invention comprises a frame having opposite sides **15** and **16**, to which brackets **17** are securely attached. The sides **15** and **16** are parallel and have mounted between them a series of substantially parallel rollers **25**. Each roller as here assembled has a plurality of longitudinally extending ridges **31** separated by longitudinal grooves **32**. Each roller also has a plu-

rality of generally circular grooves **33** which are wavy as shown in FIG. 3. In some cases the ridges **31** and grooves **32** may be the only pattern on the rolls. Also the generally circular grooves **33** may be the only pattern on the rolls, but at present the use of both is considered desirable, as shown in FIG. 3, and produces both vertical and horizontal or longitudinal vibrations as the rollers are traversed by the user.

Each roller has axial extensions **26** which are journaled in suitable bearings **37** formed in the sides **15** and **16**. The side members **15** and **16** have smooth over-hanging edges **27** which are formed to constitute hand grips. Generally vertical bars **18** and **19** are mounted in the brackets **17**, are bent near their upper ends to form substantially parallel horizontal bars **20** and **21**. These horizontal portions are relatively long and extend over the frame, in which the rollers are mounted, for substantially its entire length. These bars may preferably be formed of stainless steel and are about one and a half inches in diameter, so that they may be readily gripped at any point by the person using the machine. The outer surfaces of these bars are smooth and highly polished for the comfort of the user. The lower ends of the generally vertical bars extend for several inches below the brackets **17** to which they are securely fastened and have rubber caps **24** at the bottom. These constitute feet on which one end of the machine rests.

The machine has extensions **28** and **29** which may be integral with the sides **15** and **16** but are at an angle thereto so that the members **28** and **29** rest on the floor or base on which the machine is mounted. At the outer end of the extensions **28** and **29** is mounted a foot rest bar **30** which may be detachably connected to the members **28** and **29** at their outer ends or hinged so that the foot rest part may be swung downwardly against the floor or base when not in use. If it is detachably mounted at the ends of **28** and **29**, it may then be removed whenever it would interfere with the desired exercise to be carried out on the machine, as hereinafter explained.

The versatility of the machine will be better understood by reference to the series of diagrams **5** to **14**, inclusive, to which special reference may now be had.

Diagram **5** shows two views of a person gripping the horizontal bars **20** and **21** and running on the exercise deck of the machine. The exercise is not merely that of walking or running because of the shape of the rollers. For example, the rollers **25** all have contours as shown in FIGURE 2. The person exercising would normally wear tennis shoes or other soft shoes such as are used in the gymnasium, and as he runs on the exercise deck, his whole body receives both up-and-down and side-to-side vibrations because the rollers are not round but are contoured with the vertical and horizontal vibration patterns diagrammatically illustrated in FIGURES 1 and 2. He also obtains additional exercise for his arms, shoulders and back by resting part of his weight on the horizontal bars.

As shown in diagram **6**, instead of running on the exercise deck the person may grip the handle bars and subject his foot and leg to vibrations by rubbing his foot back and forth over the deck. This will illustrate the use to which the machine may be put to overcome foot disabilities. For this particular exercise the person would normally put one foot on the floor beside the machine while the other is being pushed back and forth across the exercise deck. Then he would change from one foot to the other in order that both feet would be equally treated, unless there is only one which needs special treatment.

In diagram **7**, the person is seated on the exercise deck, grips the horizontal bars near the outer ends and pushes his feet against the foot rests. He then may perform a

rowing motion and a body lifting motion. His rear would be moved backward and forward over the rollers of the exercise deck, his legs being straightened when he is sitting on the upper end of the deck and bent when he is sitting at the lower end of the deck. This form of exercise is particularly useful in strengthening the back, arms and legs and has the additional benefit of tending to vibrate and reduce the rear, if too fat.

As shown in diagram **8**, the person may sit on the exercise deck and, instead of gripping the ends of the horizontal bars as shown in diagram **7**, may grasp the grips **27** on the sides **15** and **16** of the frame of the machine and then perform a similar rowing motion, but in this case pushing his body up from the frame of the deck as well as moving back and forth over the deck in a rowing motion. Quite a different set of muscles comes into play in the body pushup as contrasted with the body lifting motion in diagram **7**.

Diagram **9** illustrates the vibration of one side of the thigh, which may be performed first on one side and then on the other. This action gives a special vibratory treatment to the parts where it is desired to take off excess fat or weight and improve the contour.

Diagram **10** illustrates the use of the machine for back and rear thigh vibration. In this case the person sits in reverse position facing the back of the machine, grips the vertical bars **18** and **19** and pulls or pushes himself back and forth over the exercise deck. In this instance the vibration produced by the shaped rollers on the exercise deck would directly affect the thighs and back, and the arms and back would also be strengthened by pulling the body back and forth with the feet extended, as shown in the diagram.

Diagram **11** illustrates the use of the machine for the stomach and front thigh vibration. In this case the person grasps the grips **27** on the sides of the exercise deck near the lower end and pushes himself back and forth over exercise deck. In this fashion the shape of the rollers produces a desired vibratory effect and is particularly useful for reducing exercises for those having a fat stomach.

In diagram **12** the person exercising grasps the grips **27** on the sides of the exercise deck near the lower end, maintains his body in a rigid position with his toes resting on the floor and then pushes up with his arms and back rigid, resting his stomach on the exercise deck. He may also move his body back and forth on the deck so as to get a stomach vibration.

In diagram **13** the machine is used very much as parallel bars are used in a gymnasium. The person exercising stands on the exercise deck, grips the horizontal bars **20** and **21**, as shown at the left in diagram **13**, and then swings his legs out as shown at the right in the same diagram.

In diagram **14** the person exercising is seated on the exercise deck, grasps the horizontal bars **20** and **21**, and then lifts his body up from the deck and back, thus taking what corresponds to a chinning exercise. At the same time he may obtain a vibration on the back and thighs by moving forward and back on the rollers of the deck.

Exercise machines having cylindrical rollers have been known for at least thirty years, but none have had rollers patterned to produce a vibratory action on the entire body of the user.

The patterns in the rollers, as shown clearly in FIGS. 1 and 3, are such as to create mild vibrations and thus avoid discomfiture of the user when his weight is imposed on the rollers.

I claim:

1. An exercise machine comprising an inclined exercise deck, a pair of bars having generally vertical portions attached to said deck at one end and curved handle bar portions on the other end terminating in parallel longitudinal exercise bars and treadmill rollers mounted in parallel arrangement on said deck to rotate freely therein, said rollers having a series of longitudinally extending ridges separated by longitudinal grooves, said rollers being adapted to support the person exercising thereon whereby the entire body of the person will be vibrated by the ridges and grooves in the rollers as he moves across the rollers.

2. An exercise machine comprising an inclined exercise deck, a pair of bars having generally vertical portions attached to said deck at one end and curved handle bar portions on the other end terminating in parallel longitudinal exercise bars and treadmill rollers mounted in parallel arrangement on said deck to rotate freely therein, said rollers having a plurality of spaced generally circular grooves inclined relative to planes perpendicular to the axes of the rollers to produce a lateral vibration of the body of the use as he moves across the rollers.

3. An exercise machine comprising an inclined exercise deck, a pair of bars having generally vertical portions attached to said deck at one end and curved handle bar portions on the other end terminating in parallel longitudinal exercise bars and treadmill rollers mounted in parallel arrangement on said deck to rotate freely therein, said rollers having a series of longitudinally extending ridges separated by longitudinal grooves and a plurality of spaced generally circular inclined grooves, said rollers being adapted to support the person exercising thereon whereby the entire body of the person will be vibrated by the ridges and grooves and by the generally circular grooves in the rollers as he moves across the rollers.

4. An exercise machine comprising an inclined exercise deck and treadmill rollers mounted in parallel arrangement on said deck to rotate freely therein, said rollers having a series of longitudinally extending ridges separated by longitudinal grooves, said rollers being adapted to support the person exercising thereon whereby the entire body of the person will be vibrated by the ridges and grooves in the rollers as he moves across the rollers, and means for supporting the person when he is exercising on the deck.

5. An exercise machine comprising an inclined exercise deck and treadmill rollers mounted in parallel arrangement on said deck to rotate freely therein, said rollers having a plurality of spaced generally circular grooves inclined relative to planes perpendicular to the axes of the rollers to produce a lateral vibration of the body of the user as he moves across the rollers, and means for supporting the person when he is exercising on the deck.

6. An exercise machine comprising an inclined exercise deck and treadmill rollers mounted in parallel arrangement on said deck to rotate freely therein, said rollers having a series of longitudinally extending ridges separated by longitudinal grooves and a plurality of spaced generally circular inclined grooves, said rollers being adapted to support the person exercising thereon whereby the entire body of the person will be vibrated by the ridges and grooves and by the generally circular grooves in the rollers as he moves across the rollers, and means for supporting the person when he is exercising on the deck.

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RICHARD A. GAUDET, *Primary Examiner.*