Jan. 9, 1951 C. C. CURTIS 2,537,037

FOOT TREATMENT IMPLEMENT

Filed June 8, 1948

FIG. 1.

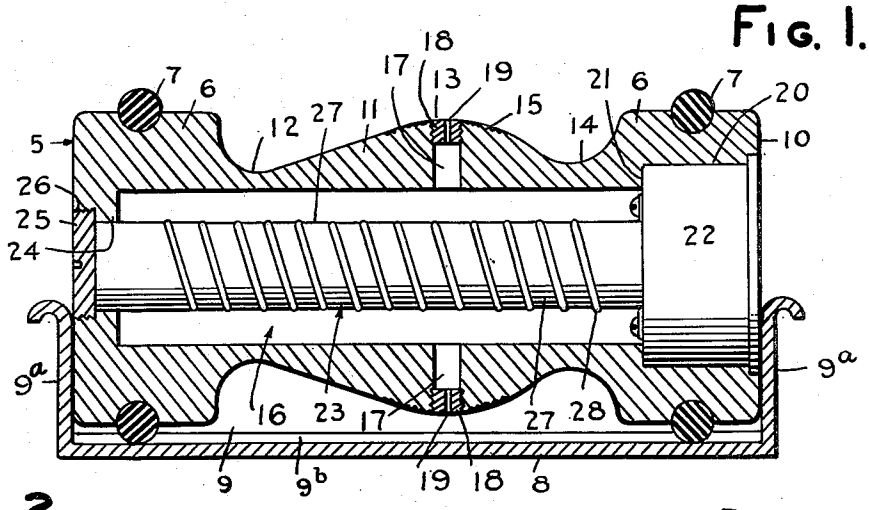


FIG. 2.

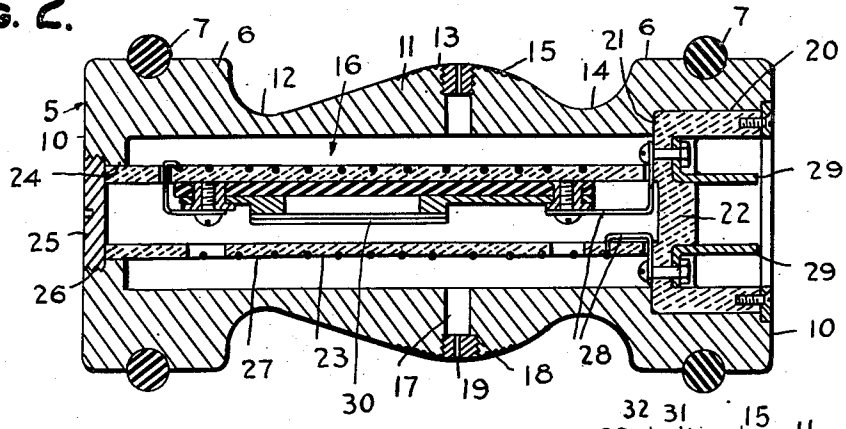


FIG. 3.

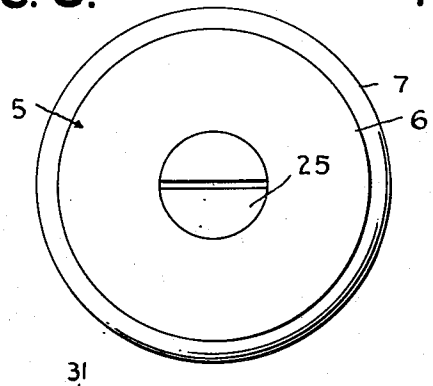
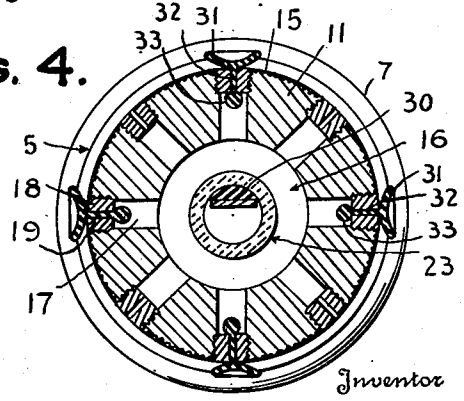


FIG. 4.



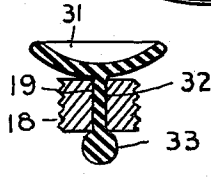


FIG. 5.

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UNITED STATES PATENT OFFICE

2,537,037

FOOT TREATMENT IMPLEMENT

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Application June 8, 1948, Serial No. 31,676

2 Claims. (Cl. 128—24.3)

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This invention relates to the treatment of a human foot by providing an implement by which the foot may be supported and moved back-and-forth thereon to massage the foot, manipulate the flesh and muscular construction of the foot, and particularly the raising of the boney structure of the arch of the foot to restore it to normal condition or overcome any tendency of the same to weaken or fall.

With the foregoing considerations in mind the object of the invention is to provide an implement in the nature of a roller or elongated form contoured to fit the bottom of the foot beneath the arch thereof and shaped to have the foot rest thereon under such pressure as may be desired, the roller being adapted to be moved back-and-forth in a rotary direction under the influence of the foot to effect the manipulation intended.

More specifically, the object of the invention is to contour the roller so that its portion of maximum diameter will have assured engagement directly beneath the arch of the foot, in other words the surface of the roller will be of increasing diameter toward one end of the foot-engaging portion of the roller as distinguished from having the operating surface of the roller of maximum diameter at the center of the implement corresponding to the longitudinal center of the foot under treatment; also the provision of means for permitting a yield or give of the implement while under the pressure of the foot to relieve the implement of severe or too rigid operation; still further the provision of means associated with the implement to guide and prevent displacement thereof when in movement under the actuation of the foot.

The preferred embodiment of the invention, embracing all of the characteristics hereinabove mentioned, as well as a means for imparting a thermal or temperature condition to the treatment during the action of the implement, is illustrated in the accompanying drawings forming part hereof, and the construction thereof will be more readily understood from said drawings when considered in connection with the detailed description hereinafter contained.

In the drawings:

Figure 1 is a longitudinal central sectional view through the device, the interior heating means appearing in side view.

Figure 2 is a longitudinal section through the device, the said interior heating means being similarly shown in section.

Figure 3 is an end view of the roller.

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Figure 4 is a central transverse section through Figure 1.

Figure 5 is an enlarged detail sectional view of a detachable suction cup or equivalent friction device to enhance the engagement between the massage device and the foot.

Referring more specifically to the drawings wherein like reference characters designate the same parts in the several views 5 represents the roller formed of suitable material such as steel or aluminum having ends 6 of maximum diameter provided with solid rubber tires or the like 7, on which the roller is adapted to bear on a floor or bottom member 8 of a trough-like guideway 9, having side flanges 9a arranged to engage the end surfaces 10 of the roller to maintain the same in a straight path of movement when moving back-and-forth under actuation of the foot to be treated, and a transversely ribbed or corrugated bottom 9b to effect vertical oscillation of the roller in its travel thereover.

The roller has a central portion 11 of reduced diameter compared to the diameter of the end portions 6, the surface of this central portion being inclined or curved, gradually forming a low point 12, adjoining one of the end portions 6 to a maximum or high point 13, somewhat beyond the longitudinal center of the implement and thence curved downwardly to a correspondingly low point 14, adjoining the opposite end portion 6 of the roller.

Assuming the sections of Figures 1 and 2 to be positioned with the high or maximum point of elevation 13 located somewhat to the right of the longitudinal center of the roller, it will be understood that the roller in this position is to receive the left foot of the patient with the maximum diameter of the intermediate or engaging portion of the roller beneath the higher or hollow portion of the foot, in other words, the arch support of the latter. The device will be operable and the conditions the same in connection with the right foot of the patient when facing the implement from the opposite side of the roller illustrated in Figure 1.

Preferably, the middle or treating portion of the roller has its exterior surface knurled or roughened to present a foot-engaging face 15 so that a bare or stockinged foot may have interlocking engagement with the roller and positively roll the implement at the will of the operator.

The roller may have efficacious use as thus far described, but it is preferable that provision be made for supplying heat or temperature there-

to, as may be desired, and to this end the interior of the roller is hollow as at 16 providing a cylindrical chamber in the roller opening to lateral outlet passages 17 coincident with the portion of the roller constituting the maximum diameter thereof, as previously stated. The lateral passages 17 are closed by detachable threaded plugs 18 having an ultimate escape aperture or vent 19. These apertures 19 also permit air to enter the chamber 16 to be heated. The chamber 16 within the roller is somewhat enlarged, as at 20, and provided with a shoulder 21 against which the head end 22 may bear when a heating device 23 is introduced into the roller with the opposite end of the device fitting a bearing 24 in the other end of the roller, the end of the heating device being covered and protected by a disc 25, threaded as at 26 into the adjacent end portion 10 of the roller. The heating element 23 may be of any preferred type, that illustrated comprising an insulating carrier 27, in the nature of a porcelain or similar core around which the resistance or heating wiring 28 is wound and electrically connected through the head 22 to terminals 29 for engagement with a socket in communication with an electrical source of supply. Conveniently, also, a thermostat 30 may be introduced into the wiring for limiting the maximum heating of the device.

While I have herein specifically referred to the thermal conditions that will be imparted by the electrical heating coil or device, it is to be understood that in keeping with the alternative factor of running the implement cold, the heating unit may be withdrawn from the end of the roller and a cooling medium, for example, such as disclosed in my co-pending application Serial No. 31,674, filed June 8, 1948, may be resorted to.

The plugs 18 afford a convenient instrumentality whereby to attach suction cups or devices to enhance the engagement between the massage device and the foot at the same time exercising the fleshy part of the foot in a somewhat kneading fashion incident to the rolling of the implement under the pressure of the foot and raising of the said fleshy parts into and out of engagement with said cups.

The cups just referred to are illustrated in Figure 4 where it will be noted that in the instances of say every other one of the plugs 18, a suction cup attachment is provided, the same comprising cup circular rubber discs 31, having rubber shanks 32 and yieldable balls 33, the rubber shanks being adapted to pass through the passages 17 with the balls 33 under compression or elongation until freed underneath the plug 18 where it can expand and retain the cups in place.

I claim:

1. A foot treating implement comprising an elongated metallic roller having enlarged end portions, cushioning means thereon to contact a bearing surface, and an intermediate engaging portion for the bottom of the foot and having means to facilitate the hold of a foot to the implement comprising friction cups rolling therewith and said friction cups having a stem passing through an apertured portion of the implement, and a compressible ball at the end of the stem adapted normally to be of a size to prevent escape through said aperture.

2. A foot treating implement comprising an elongated roller having enlarged ends and an intermediate part to be engaged by the bottom of a foot being treated, said ends being provided with inwardly extending concaved side walls joining with the intermediate part and forming valleys adjacent said ends, said intermediate part being provided with an internal chamber for containing an electrical heating unit and comprising a portion formed as a truncated cone and a part joined therewith of semi-spherical form, that part of said truncated cone having the greatest diameter being convexly curved longitudinally and positioned slightly beyond the longitudinal center of said intermediate part, said convexly curved part of the truncated cone being provided with circumferentially spaced openings communicating with the internal chamber so that heated air from said chamber may be directly applied to the bottom of the foot.

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