Oct. 8, 1940. M. MacLEVY 2,217,343

MASSAGING APPARATUS

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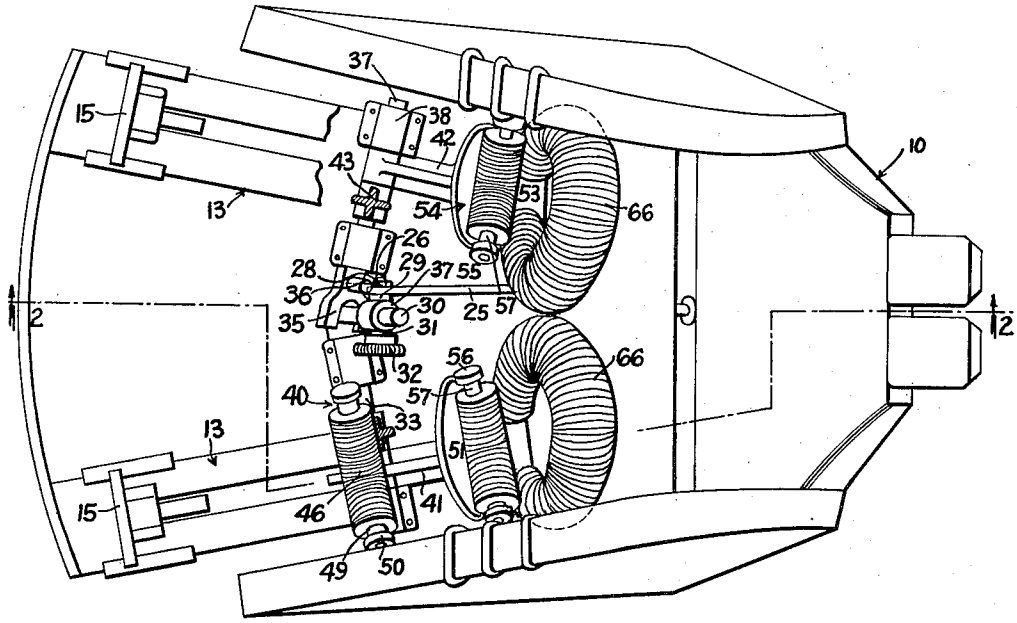


Fig. 1.

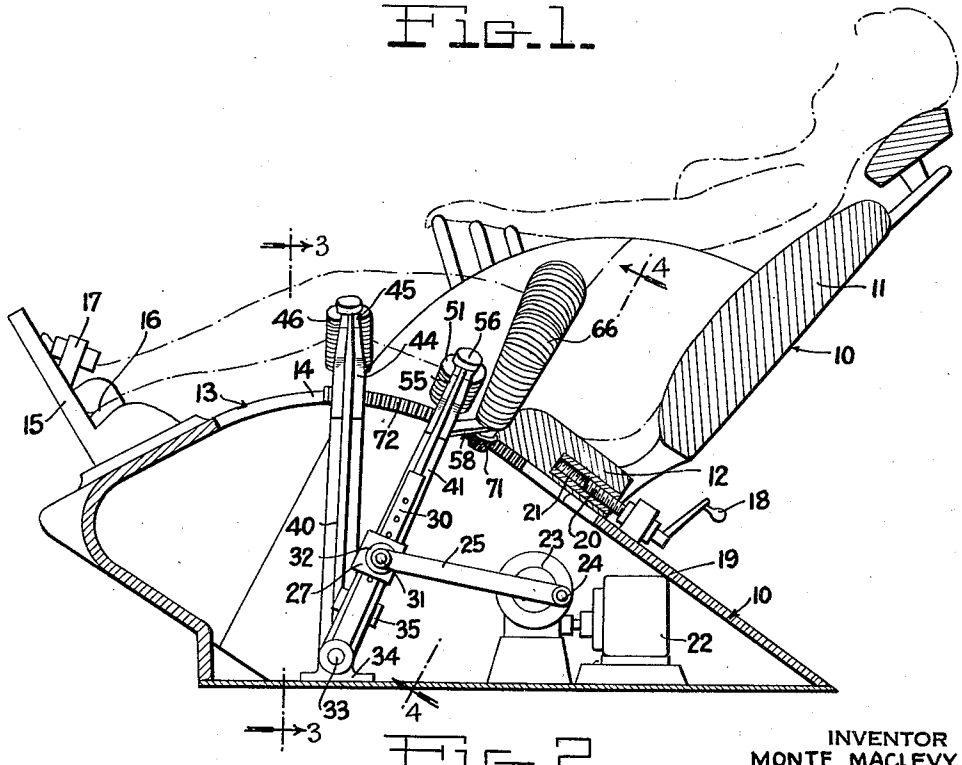


Fig. 2.

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Fig. 3.

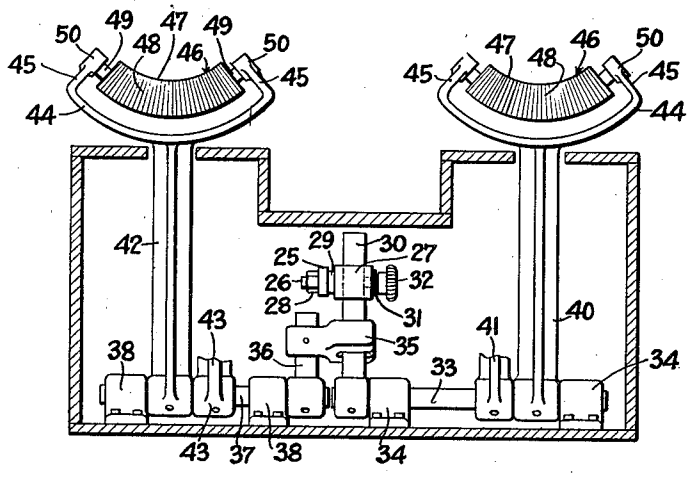
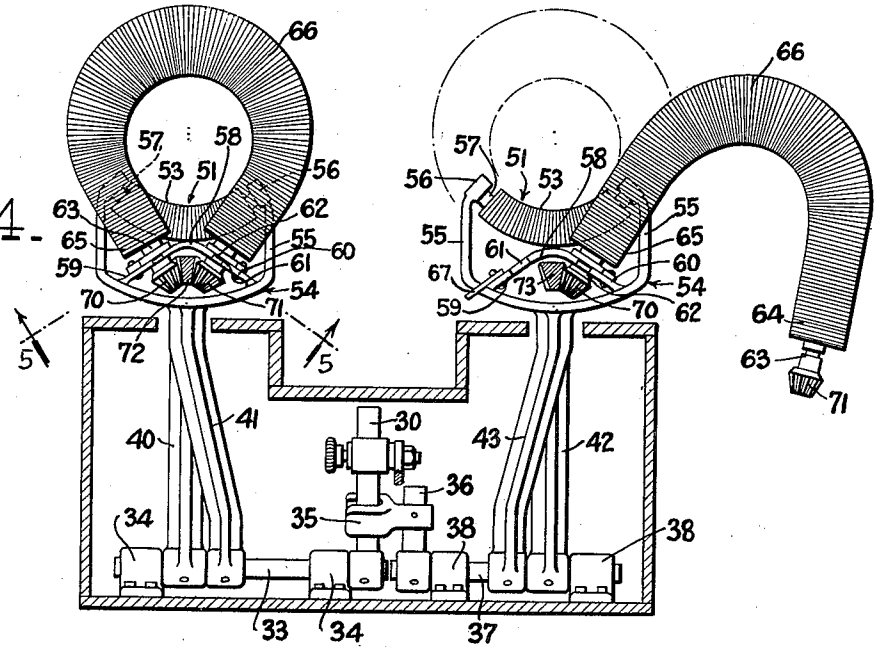


Fig. 4.



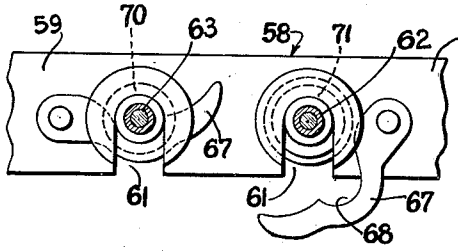


Fig. 5.

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UNITED STATES PATENT OFFICE

2,217,343

MASSAGING APPARATUS

Monte MacLevy, Brooklyn, N. Y.

Application July 21, 1939, Serial No. 285,674

14 Claims. (Cl. 128—57)

This invention relates to massaging apparatus, particularly of the type adapted for massaging the legs and thighs of a person.

Most mechanical massaging devices are designed primarily for manipulative application to the torso of a subject, the apparatus not being conveniently and effectively applicable to the thighs and calves which are generally massaged by manual manipulation. It is primarily within the contemplation of my invention to provide mechanical means for massaging a person's legs and thighs in a manner that has heretofore been possible only by a well-executed manual massage. And in this aspect of my invention it is a further objective to effect a simultaneous massage of the calf and thigh so as to produce most effective results in a minimum of time.

It is also within the contemplation of my invention to enable the massaging operation to be effectuated while the legs are relieved of practically all strain, an objective that I attain by providing such supporting means for the subject as to enable him to recline in a position where the legs and thighs are conveniently supported in natural angular relation with respect to each other so that they may be completely relaxed during the massaging operation. And in this aspect of my invention it is a further object to provide mechanical massaging implements simultaneously and operably movable in different directions so as to be engageable with various portions of both legs and thighs.

It is still a further object of my invention to enable a subject to be readily placed in proper massaging position with a minimum of effort.

And another object of my invention is to provide a simple and readily constructed apparatus capable of efficiently accomplishing all the aforesaid objectives.

Other objects, features and advantages will appear from the drawings and the description hereinafter given.

Referring to the drawings:

Figure 1 is a plan view of an apparatus containing my invention, the front leg roller being removed for clarity.

Figure 2 is a section of Figure 1 substantially along line 22 thereof, showing a subject in place.

Figure 3 is a section of Figure 2 taken along line 3—3.

Figure 4 is a section of Figure 2 taken along line 4—4, one of the ring rollers being shown disconnected, and

Figure 5 is a section substantially along line 5—5 of Figure 4, showing a development of the brace and one ring roller shaft locked and the other unlocked.

In the drawings the entire apparatus constituting my invention is operatively associated with the chair 10 containing an inclined back 11 and seat portion 12 for supporting the subject. The said seat portion 12 is inclined upwardly and forwardly from the back 11, so that the thighs of the subject will normally extend upwardly in a direction generally parallel to the seat. The structure contains the two arcuate guides 13 which extend first upwardly preferably from the under-surface of the seat to the crests 14, and then downwardly toward the foot supports 15, each of said supports being provided with a foot rest 16 and a toe strap and pad member 17. By means of a crank member 18 operatively connected to the seat portion 12, the seat can be slidably moved along the inclined supporting surface 19 to vary its distance from the foot supports 15, and in this manner enable the apparatus to conveniently accommodate legs of various lengths. The crank member 18 is operatively associated with the screw member 20 in engagement with the threaded socket 21 in well known manner, so as to enable the adjustment of the seat to be readily effectuated.

Positioned preferably underneath the seat portion 12 is the motor 22 operatively connected to the crank unit 23. Pivotally attached to the crank unit at 24 is the link 25, the forward end of which is pivotally mounted upon the pin 26 fixedly associated with block 27,—the nut 28 and collar 29 holding the link against lateral displacement. The block 27 is adjustably and slidably positioned over the arm 30 and held in place at any predetermined position by means of the screw 31 threaded into the block 27 and engageable with the said arm 30 for frictionally holding the block thereagainst—the head of the screw being provided with the hand wheel 32.

The said arm 30 has its lower end fixedly attached to the shaft 33 which is supported by the bearings 34. Straddling said arm 30 is the bifurcated member 35 secured to bar 36 which is fixedly attached to shaft 37 rotatably mounted within bearings 38. It should be noted that shafts 33 and 37 are angularly disposed with respect to each other, as clearly shown in Figure 1, to provide suitable operable connection for two sets of massaging implements adapted for manipulative engagement with the angularly disposed legs of the subject, as will more fully hereinafter appear.

Fixedly attached to shaft 33 are the two up-

wardly extending roller supports 40 and 41 angularly disposed with respect to each other, the former being forwardly positioned and in fixed relation with respect to the latter. In the preferred arrangement, the rearmost position of support 40 is substantially vertical, intersecting the region of the crest 14 of the corresponding guide 13, at which position the knee of the subject is disposed; and the support 41 in its rearmost position is adjacent the region of the front of seat portion 12. The shaft 37 is similarly provided with upwardly extending roller supports 42 and 43, support 42 corresponding to support 40, and support 43 corresponding to support 41.

The supports 40 and 42 contain at their upper portions the brackets 44 provided with arms 45 rotatably supporting the rollers 46. Each of these rollers presents an upper concave surface 47 for engagement with the calf of the subject, the rollers being of flexible and resilient construction so as to permit an adjustable rolling engagement with the leg. In the preferred construction illustrated, these rollers consist of spring sections 48 and shaft members 49 fixedly secured to the spring sections and rotatably supported within the bearings 50 of the arms 45.

The rear or thigh-massaging supports 41 and 43 also support flexible rollers 51 each presenting an upper concave surface 53 for engagement with the underside of the thigh. The rollers are supported by brackets 54 containing thereon the arms 55 and bearings 56 for rotatively receiving the shaft members 57. Each of the brackets 54 contains supporting braces 58 provided with angularly disposed arms 59 and 60, each of these arms containing an open-ended recess 61 for removably accommodating the shaft members 62 and 63 which are fixedly secured to the opposite terminal portions 64 and 65, respectively, of one of the flexible horseshoe-shaped ring roller members 66 and which extend in converging directions therefrom, these roller members being preferably of coil spring construction. The said shaft members 62 and 63 are each held in place by a pivotally mounted locking member 67 with a recessed portion 68 engageable therewith and adapted to cooperate with the slotted portions 61 of the arms 59 and 60 to form a complete laterally enclosed bearing surface for each of said shaft members. Obviously, by a simple rotation of the member 67 so as to bring the recessed portion 68 thereof out of registry with aperture 61, the shaft member can be readily withdrawn from its corresponding arm 59 or 60. It should be noted that the concave surface 53 of each roller 51 is disposed at the bottom opening in the ring roller, so as to provide a complete laterally enclosed massaging implement for circumferential engagement with the thigh.

Affixed to the shaft members 62 and 63 of each ring roller member are the bevel gears 70 and 71, the two sets of said bevel gears for both ring rollers being in engagement with two geared racks 72 and 73, both lateral faces of each of said racks being provided with gear teeth, as clearly indicated in the drawings. It will be noted that the racks follow the contour of the arcuate guides 13.

A person who is to receive a treatment seats himself upon the chair in inclined position, the handle 18 being rotatably manipulated so as to move the seat portion 12 the proper distance from the foot supports 15 for conveniently accommodating the subject in accordance with the length of his legs and with the desired angular disposition between his legs and thighs. Obviously at this point the ring roller elements 66 are in their inoperative conditions, one or both of the shaft members 62 and 63 having been removed from operative engagement with the arms 59 and 60, as hereinabove set forth, thereby enabling the subject's legs to be readily placed in position over the rollers 46 and 51, which also serve as leg rests. Thereafter the said ring rollers 66 are swung around the thighs and the said shaft members returned to their operative positions in the arms 59 and 60, the members 67 being operatively rotated to hold said shaft members against displacement. The said arms 59 and 60 are so positioned and proportioned as to hold the gears 70 and 71 in proper engagement with the rack for proper operative results. Due to their resiliency and expansibility, the members 66 can obviously accommodate thighs of various proportions.

When the subject is properly seated in place and the parts adjusted as above indicated, the motor 22 is set into operation, causing an oscillatory movement of the supports 40, 41, 42 and 43 and their associated parts, through the medium of the crank unit 23, link 25, block 27 and shafts 33 and 37. The supports 41 and 43, being connected through the braces 58 with the ring rollers 66, will rockably actuate said rollers. As this occurs, the bevel gears 70 and 71 are rotatably actuated by the teeth on racks 72 and 73, causing a rotation of the spring segments of the ring rollers around their common arcuate axes. Thus, there will be yieldable rolling engagement between the ring rollers 66 and the upper and lateral sides of the thighs, the undersides being rollably engaged by the underlying rollers 51. The rollers 46 carried by supports 40 and 42 are in engagement only with the underside of the calf, the upper portion being left free. It is thus apparent that by means of a single source of motive power, the calves and all portions of the thighs are simultaneously massaged by flexible and yieldable rolling members, the rollers 46 being capable only, by virtue of their limited motion, of engaging the calves of the subject, whereas the ring rollers 66 and underlying rollers 51 are capable only of engaging the thighs, due to the fact that their operative forward movements do not extend beyond the crest 14 of the guides 13.

Due to the flexible and resilient structure of the above described massaging elements, an effect that closely simulates a well-executed manual massage is obtained, and due to the fact that all the massaging elements, including the ring roller members 66, are at all times in rollable contact with the legs and thighs of the subject, all danger of undesirable frictional engagement is eliminated. The massaging operations are also effected while the subject is in a relaxed condition with all stress and strain removed from the legs, a condition which is conducive to most beneficial results. The arrangement is also such as to enable the subject to rest his legs in diverging directions, the thighs and legs being angularly disposed, an arrangement which is considered most satisfactory for this type of massage; and the massaging elements are operatively moved by my invention along such diverging and angular paths.

It is of course understood that the structure above described and shown in the drawings is merely illustrative of my invention, inasmuch as numerous changes and modifications may be made therein within the scope of the appended

claims without departing from the spirit of this invention.

What I claim is:

1. In a leg and thigh massaging apparatus, a body supporting member comprising a seat, two foot supports spaced from each other and from said seat for maintaining the legs and thighs of a subject operably seated on the member in predetermined angular disposition with respect to each other, a plurality of movable rollers adapted for underlying supporting engagement with the legs and thighs of the subject, guiding means operatively associated with said rollers and disposed in substantially arcuate paths in directions extending generally from the seat towards said supports, and means to oscillate said rollers in operative association with said guiding means.

2. In a leg and thigh massaging apparatus, the combination according to claim 1, further provided with roller members adapted for substantially circumferential engagement with the thighs of the subject and movable in substantially arcuate paths in directions extending generally from the seat towards said supports, and means to oscillate said members.

3. In a leg and thigh massaging apparatus, a body supporting member comprising a seat, two foot supports spaced from each other and from said seat for maintaining the legs and thighs of a subject operably seated on the member in predetermined angular disposition with respect to each other, forwardly disposed roller means adapted for underlying supporting engagement with the calfs of the subject, rearwardly disposed roller means adapted for engagement with the thighs of the subject, guiding means operatively associated with said roller means and disposed in substantially arcuate paths in directions extending generally from the seat towards said supports, and means to oscillate said roller means.

4. In a leg and thigh massaging apparatus, the combination according to claim 3, the said forwardly and rearwardly disposed roller means being in predetermined fixed space relation with respect to each other during their operative movements.

5. In a leg and thigh massaging apparatus, the combination according to claim 3, further provided with means for varying the distance between the seat and said foot supports whereby the angular disposition between the thighs and legs can be adjustably varied.

6. In a leg and thigh massaging apparatus, a body supporting member comprising a forwardly and upwardly extending seat portion, two foot supports spaced from each other and from said seat portion for maintaining the thighs of a subject in an upwardly inclined direction and the legs of the subject in a downwardly inclined direction, forwardly disposed roller means adapted for underlying supporting engagement with the subject's legs, rearwardly disposed roller means adapted for engagement with the subject's thighs, guiding means operatively associated with said roller means and disposed in substantially arcuate directions along paths extending generally from the seat towards said supports, and means to oscillate said roller means in operative association with said guiding means.

7. In a leg and thigh massaging apparatus, the combination according to claim 6, the forward movement of the rearwardly disposed roller means and the rearward movement of the forwardly disposed roller means not extending beyond the region of the knee of the subject.

8. In a leg and thigh massaging apparatus, a body supporting member comprising a seat, two foot supports spaced from each other and from said seat for maintaining the legs and thighs of a subject operably seated on the member in predetermined angular disposition with respect to each other, leg-engaging roller means, thigh-engaging roller means, rotatably mounted supports for said roller means, the leg and thigh roller means being in predetermined fixed spaced relation with respect to each other during their operative movements, and means to rockingly actuate said supports.

9. In a leg and thigh massaging apparatus, the combination according to claim 8, the rotatably mounted supports comprising a pair of supports for the right leg and thigh roller means and a pair of supports for the left leg and thigh roller means, the mounting for said two pairs of supports comprising two adjacent angularly disposed shafts each extending substantially at right angles to the direction of the legs, further provided with oscillatory means associated with one of said shafts, and connecting means between said supports.

10. In a leg and thigh massaging apparatus, a body supporting member comprising a seat, two foot supports spaced from each other and from said seat for maintaining the legs and thighs of a subject operably seated on the member in predetermined angular disposition with respect to each other, flexible leg-engaging rollers adapted for underlying supporting engagement with the subject's legs, flexible thigh-engaging rollers spaced from said leg-engaging rollers and adapted for underlying supporting engagement with the subject's thighs, flexible and expansible ring roller elements connected to said thigh-engaging rollers and adapted for substantially circumferential engagement with the subject's thighs, rotatably mounted supports for said rollers, and means to rockably actuate said supports.

11. In a massaging apparatus, a ring roller member of coil spring construction bent into arcuate configuration with the free terminals thereof in converging spaced relation, a gear fixedly attached to each of said terminals, a rack extending between said gears along a predetermined path, gear teeth on opposite faces of said rack and engageable with said gears, and means to move said member in the direction of said path whereby the gears and the coils of the member will be rotated about their common arcuate axis.

12. In a leg and thigh massaging apparatus, a body supporting member comprising a seat, spaced leg and thigh-engaging roller means, rotaably mounted supports for said roller means for imparting thereto an arcuate movement, said thigh-engaging means comprising a resilient roller adapted for underying supporting engagement with the thigh of the subject and a flexible and expansible ring roller member bent into arcuate configuration and adapted for embracing engagement with the top and lateral sides of the thigh, the ring roller having its free terminal ends in converging spaced relation, gear means fixedly attached to said terminals, a guide rack extending generally forwardly from the seat and curved to conform to the arcuate path of said resilient thigh-engaging roller, gear teeth on said rack operatively engageable with

the gear means on the ring roller, and means to rockably actuate said supports whereby an oscillatory movement will be imparted to the roller means and the gears together with the ring roller will be rotated about their common arcuate axis.

13. In a leg and thigh massaging apparatus, the combination according to claim 12, the support for said thigh-engaging means containing a brace with angularly disposed arms rotatably supporting the said gear means on the ring roller and maintaining them in operative engagement with said rack.

14. In a leg and thigh massaging apparatus, the combination according to claim 12, further provided with means for detachably holding the gear means on the ring roller in operative engagement with said guide rack.

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