Nov. 19, 1935. B. B. LIPSNER 2,021,732

MASSAGE DEVICE

Filed May 25, 1934

Fig. 1.

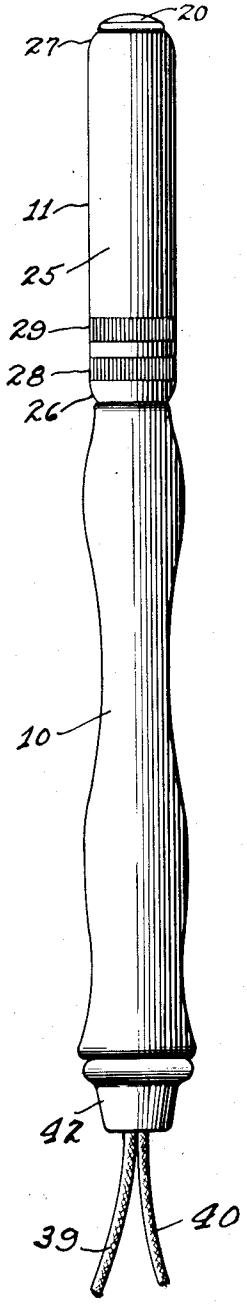


Fig. 2.

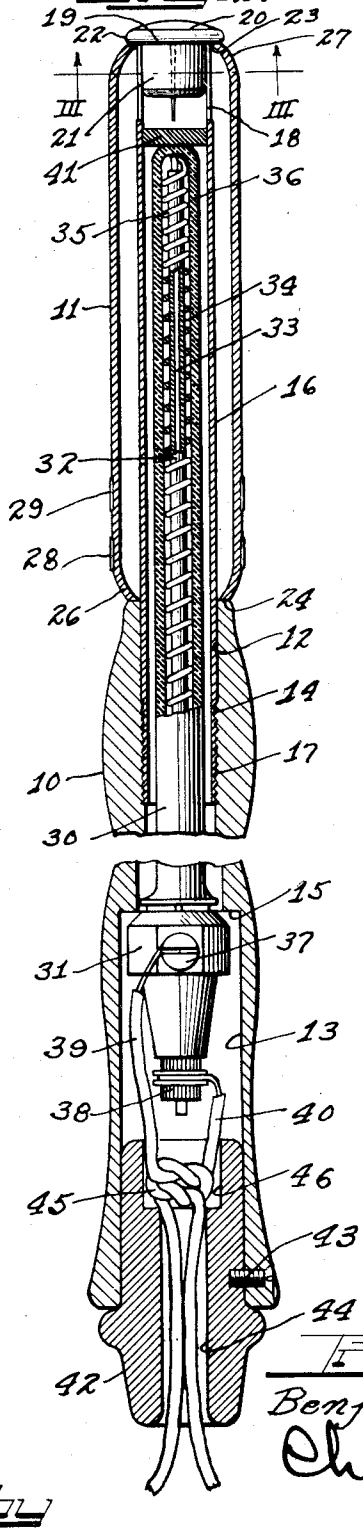


Fig. 4.

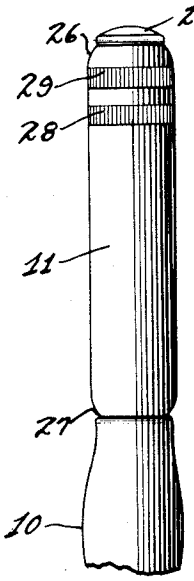
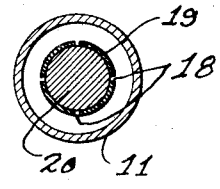


Fig. 3.



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UNITED STATES PATENT OFFICE

2,021,732

MASSAGE DEVICE

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Application May 25, 1934, Serial No. 727,389

4 Claims. (Cl. 128—57)

This invention relates to a massage device and more particularly to an electrically heated device for use in massaging facial and other body portions.

The present invention constitutes an improvement over that disclosed and claimed in my Patent No. 1,923,317, dated August 22, 1933.

The massage device embodying this invention is of simple, rugged construction and so designed as to facilitate its use in the massaging of facial and other body contours. An important improvement in the construction of the present device resides in the provision of a resiliently engaged plug cap which serves for retaining the roller in place and which can be readily removed to reverse the roller end for end on its spindle or shaft.

Another improvement resides in the construction of the electrical heating element and in the manner whereby the heating element is assembled in position within the roller spindle.

It is therefore an important object of this invention to provide a massage device of novel and improved construction, such that its parts may be readily assembled together, and provided with means whereby the roller element may be quickly and without effort removed and reversed end for end on its spindle.

Other and further important objects of this invention will be apparent from the disclosures in the specification and the accompanying drawing.

This invention (in a preferred form) is illustrated in the drawing and hereinafter more fully described.

On the drawing:

Figure 1 is a plan view of a massage device embodying the principles of my invention.

Figure 2 is an enlarged, broken longitudinal sectional view of said device.

Figure 3 is a sectional view taken substantially on the line III—III of Fig. 2.

Figure 4 is a fragmentary plan view of the operating end of my massage device with the roller element in its reversed position.

As shown on the drawing:

The massage device of my invention comprises a handle 10 from which is mounted a roller 11. Said handle 10 is preferably of non-heat conducting material, such as wood, or a molded rubber or synthetic resin composition. It is suitably elongated and of such contour as to be easily grasped in the manipulation of the device. Said handle 10 is of hollow construction, being provided with a smooth cylindrical bore 12 extending for a short distance inwardly from the roller end and with an enlarged cylindrical bore 13 extending through the other end of the handle. Initially, the bore 12 is slightly reduced in diameter as at 14, starting back from the roller end a short distance and continuing to the shoulder 15 provided by the enlarged bore portion 13. The purpose of this construction will shortly appear.

The roller 11 comprises a hollow shell having reduced ends mounted for rotation upon a cylindrical tube or spindle 16. Said spindle 16 is provided with a threaded end 17 having an outside diameter substantially the same as that of the unreduced portion of the bore 12. In assembling the spindle 16 in the handle 10, said spindle is inserted into the unreduced portion of the bore 12 and is then threaded into the reduced portion 14 of said bore so as to form its own threads in said bore portion. Since the spindle 16 is preferably made of metal, the turning of the thread in the bore portion 17 is a simple and effective means of permanently securing said spindle 16 in the handle 10. This is an important feature, since the unequal expansion and contraction of the spindle 16 and handle 10 caused by the heating and cooling of the device would tend to loosen or weaken any joint between the two. The method described, however, of actually threading the metal spindle 16 into the slightly reduced bore portion 17 to form its own thread results in a permanent joint that does not become weakened during use of the device.

The free end of the spindle 16 is provided with a plurality of slots 18 extending longitudinally inwardly from said extremity for a short distance to provide prongs 19. The prongs 19 are milled very slightly both inside and outside for a small distance inwardly from their extremities in order to reduce the thickness of said prongs and increase their spring action or resiliency. A forming tool is then used on said prong ends to spring said prong ends inwardly ever so slightly.

A plug cap 20 is formed with a smooth cylindrical plug portion 21 of slightly greater diameter than the inside diameter of the prongs 19, resulting from the foregoing steps, so that when said plug portion is inserted into the free end of said spindle 16, it causes a slight expansion of the prongs 19 and a frictional or spring-like action between said prongs and the smooth plug portion 21 to effect a retaining engagement therebetween. Said plug cap 20 is also formed with a smoothly rounded flanged head 22 to

provide a shoulder 23 adapted upon insertion of the plug cap into the end of the spindle 16 to abut the ends of the prongs 19.

The flanged head 22 of the plug cap 20 also serves to retain the roller 11 in freely rotatable position on the spindle 16 with its ends abutting the roller end 24 of the handle 10 and the shoulder 23, respectively. In this position, the roller 11 is held against any substantial movement longitudinally of the spindle 16, yet is nevertheless free to rotate on said spindle with minimum surface friction.

The step, previously described, of milling the prongs makes it possible for the plug portion 21 to expand the prongs 19 outwardly to an extent just sufficient to compensate for the reduced diameter caused by the milling operation and to bring the outside surface of the prongs into a cylinder of the same diameter as that of the spindle itself. This eliminates any bend tendency that otherwise might occur between the roller and the spindle end adjacent the prongs.

Said roller 11 is preferably formed of metal, such as aluminum or any other suitable metallurgical composition and is provided with a smooth cylindrical outer surface 25 for a greater portion of its length. Each of the ends of the roller 11 is smoothly and uniformly rounded, as at 26 and 27, and adjacent one of said rounded ends, such as the end 26, there are provided two spaced bands 28 and 29 of a knurled or roughened surface portion. Said knurled surfaces 28 and 29 cause a greater excitation of the tissues during the massaging operation, as will later be explained.

A heating element, designated generally by the reference numeral 30 is adapted to be inserted through the hollow handle 10 up into the spindle 16. Said heating element 30 is of rigid unitary construction and comprises an enlarged portion 31 secured to one end of the heating element proper, designated at 32. Said heating element 32 is made up of a straight length of resistance wire 33 having a relatively rigid insulation covering 34, over which a continuation of said resistance wire 33 is helically wound in turns 35. An outer covering 36 of molded or wrapped insulation material envelops the windings 35 and continues back to the enlarged portion 31. On said enlarged portion 31 is provided a contact screw 37 that is in electrical connection with the windings 35. A second contact 38 at the extremity of said enlarged portion 31 is connected to the straight length of resistance wire 33. Insulated lead wires 39 and 40 are adapted to be connected to the contact screws or posts 37 and 38, respectively.

The heating element 30, in assembled position, is held in place by means of a disk 41 permanently retained within the spindle 16, as by being pressed in to a position beyond the milled portions of the prongs 21. A passaged plug 42, held in the open end of the bore 13, as by means of a screw 43, provides a passage 44 for the lead wires 39 and 40 and also serves to hold the heating unit in position in the device. To accomplish this end, the lead wires 39 and 40 are knotted as at 45 and the plug 42 is provided with a counterbore 46 for receiving said knot 45. The knot 45 is so positioned and of such size as to be received within the counterbore 46 and substantially fill the same, so that said plug 42 holds the heating unit up against the disk 41 at the end of the spindle 16. Also, this arrangement prevents a pull on the outside portions of the lead wires 39 and 40 from being transmitted to the contact screw connections.

As is apparent, the roller 11 may be reversed end for end on the spindle 16 by merely slipping out the retaining plug cap 20 and reversing the roller from the position shown in Fig. 1 to that shown in Fig. 4, and then replacing the plug cap 20. While the spring engagement of the plug cap 20 with the prongs 19 is sufficient to retain the plug cap in place during use, it is easily disengaged from its position manually without the use of any instruments. This is a decided advantage over the use of set screws and the like in prior devices.

In using a massage device of my invention, it is preferable to follow a certain procedure in order to get the best results. The portion of the skin to be massaged is first cleaned, either by means of water or by the use of a cleansing cream and then the skin is gently massaged by application thereto of the heated roller. The heating element is so designed as to give a maximum temperature of about 108° F. at the surface of the roller 11 during application. It will be understood, of course, that the temperature of the heating element itself may rise considerably higher than 108° F., but the dead air spaces between the heating unit, the spindle 16 and the roller 11 prevent the roller from reaching the same temperature as the heating element itself. Furthermore, contact of the roller with the skin causes a certain amount of the heat to be dissipated by absorption of such heat by the tissues during use of the device, thereby lowering the roller surface temperature.

This construction and arrangement of the heating element is an important feature of my invention, inasmuch as it eliminates the need of any thermostats or the necessity for switching the current on and off during operation of the device, as is frequently necessary in prior art devices to prevent the massage roller from becoming too hot. In the use of my device, the roller 11 cannot reach an unpleasantly high temperature during continuous use.

I find that the absorption by the skin and body portions of the infra red, or penetrating radiations given off by the heated roller have a very beneficial effect in combination with the massaging action of the roller and particularly is this true if an ultraviolet light irradiated salve or inunction is employed in the massaging treatment, as described hereinafter.

In the preliminary massaging of the skin, however, it is preferable not to use any oil or salve but merely to use the bare roller directly on the skin. In this way, the skin surface undergoing treatment is gently stimulated and a mildly hyperemic condition of the skin is induced.

After this condition is obtained, salve is applied to the surface tissues and the massaging is continued with gliding strokes. I prefer to employ an oleaginous preparation that has been irradiated with ultraviolet light for this purpose, since I have found, as before stated, that special results are obtained by the combined application of an irradiated salve and infra red rays. The particular type of oil or oleaginous composition, however, forms no part of the present invention and need not be described here.

During the massaging operation, where an oily or unctuous salve is also being used, the heat of the massaging roller 11 serves both to lower the viscosity of the salve and also to locally stimulate the skin tissues and open up and enlarge

the pores of the skin, with the result that the salve is more readily and completely absorbed into the skin tissues.

In addition to the beneficial cosmetic or dermatological effect of the massaging treatment, the treatment also serves to exercise the muscles adjacent the skin area undergoing the massage and is soothing to the nerve ends.

The smoothly rounded contour of the roller ends **26** and **27** prevent any unequal pressures from being applied to the skin surface during the massaging operation. As a result, free action and a uniformly distributed pressure without any frictional resistance caused by relative movement between contacting surfaces may be applied for the full length of the body portion of the roller **11**. Also, because of the smoothly rounded contour of the outer end of the plug cap **20** and of its flange **23**, there is no danger of hair or flesh becoming pinched between the end of the roller **11** and the cap **20**.

As previously stated, different effects can be produced depending upon the positioning of the knurled bands **28** and **29** with respect to the end of the massage device. Where a greater stimulating and agitating effect is desired, the roller **11** is positioned as shown in Fig. 4 with the knurled bands **28** and **29** adjacent the free end of the device, so that these knurled portions may be brought into direct contact with the portion of the skin surface undergoing massaging treatment. Because of the absence of any yoke or other obstructing element from the free end of the massaging roller, the device may be easily manipulated into the deeper recesses about the nose and eyes and other portions of the body with perfect freedom. The straight, elongated handle also aids in the manipulation of the massage device of my invention.

I am aware that many changes may be made and numerous details of construction may be varied through a wide range without departing from the principles of this invention, and I, therefore, do not purpose limiting the patent granted hereon otherwise than necessitated by the prior art.

I claim as my invention:

1. In a massage device, a handle, a hollow spindle secured therein at one end and having a plurality of substantially axially extending prongs at the other end with no part of any prong lying radially outwardly of the surface of the spindle, a roller having a cylindrical body portion and smoothly rounded inwardly directed ends constituting bearings for said roller, one end of said roller having bearing engagement with said spindle adjacent the handle and the other end of said roller overlying said prongs, and a cap having a cylindrical portion inserted in the ends of said prongs in expanding resilient relation therewith to spread said prongs into bearing engagement with the adjacent end of said roller bearing and to retain the roller for rotation on said spindle against said handle.

2. A massage device including a handle, a spindle secured at one end only to said handle and having its free end radially yieldable with no part of said yieldable end lying radially outwardly of the spindle surface at any time, a roller mounted for free action on said spindle and having an end overlying the yieldable end of said spindle, and a member resiliently and removably engaged by the yieldable end of said spindle for forcing said end into bearing engagement with the adjacent end of said roller and constituting the sole means for retaining said roller in position on said spindle whereby said roller is free from any component element of this device externally of said roller that would obstruct the manipulation of the roller into the deepest recesses of the body.

3. A massage device including a handle, a hollow spindle secured at one end therein and having the extremity of its other end inwardly and outwardly yieldable, a roller having a cylindrical shell portion with restricted ends constituting bearings for the engagement of the spindle, said roller being mounted on said spindle with one of its bearing ends surrounding said yieldable spindle end, and means resiliently and removably associated with said yieldable end to spread said end into bearing engagement with the adjacent end of said roller and to retain said roller on said spindle, with no part of said spread ends lying radially outwardly of the spindle surface.

4. A massage device including an elongated handle, a cylindrical spindle connected thereto and extending axially therefrom and having a plurality of axially extending prongs at its free end, said prongs being reduced in radial thickness so as to be readily yieldable and being normally slightly bent inwardly of the cylindrical surface of said spindle, a plug cap having a cylindrical plug portion inserted in expanding relation to said prongs to force out the extremities thereof into substantial coincidence with the cylindrical surface, and a roller member on said spindle having a bearing at one end against said expanded prongs and at its other end a bearing against said spindle adjacent the handle, the roller being otherwise spaced from said spindle to provide an air space therebetween, said prongs having no parts thereof projecting radially outwardly of said spindle surface when said cap is in place in expanding relation.

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