Oct. 17, 1950 O. J. ALVAREZ 2,526,190

MASSAGING DEVICE

Filed July 17, 1947 3 Sheets-Sheet 1

Fig. 1.

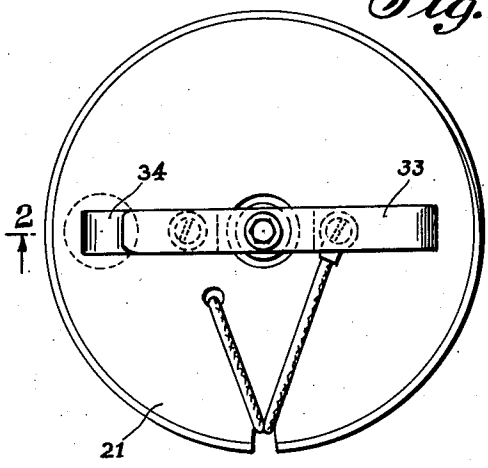


Fig. 2.

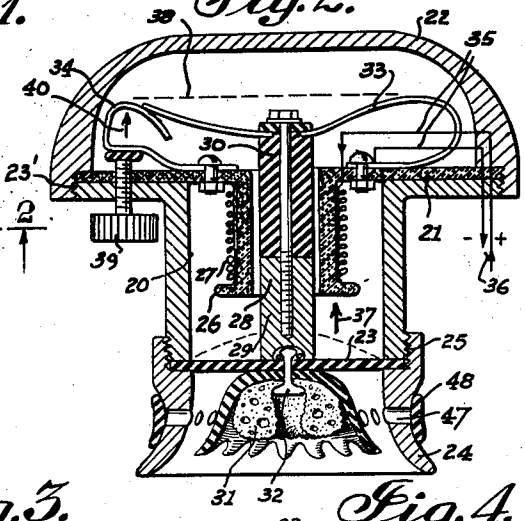


Fig. 3.

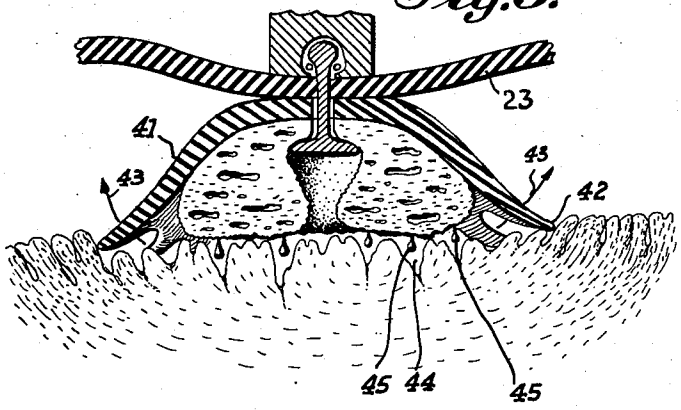


Fig. 4.

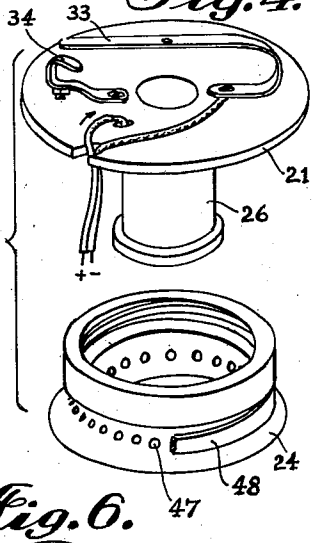


Fig. 5.

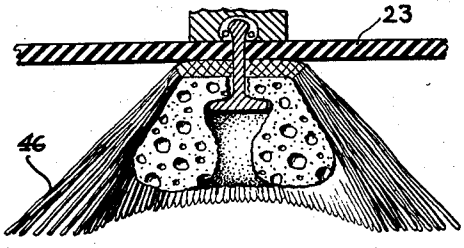
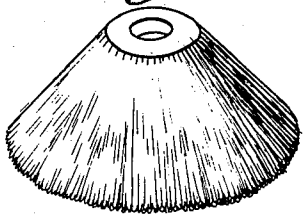


Fig. 6.



INVENTOR.

Octavio Jose Alvarez

BY

Michael G. Gibbons

Oct. 17, 1950 O. J. ALVAREZ 2,526,190

MASSAGING DEVICE

Filed July 17, 1947 3 Sheets-Sheet 2

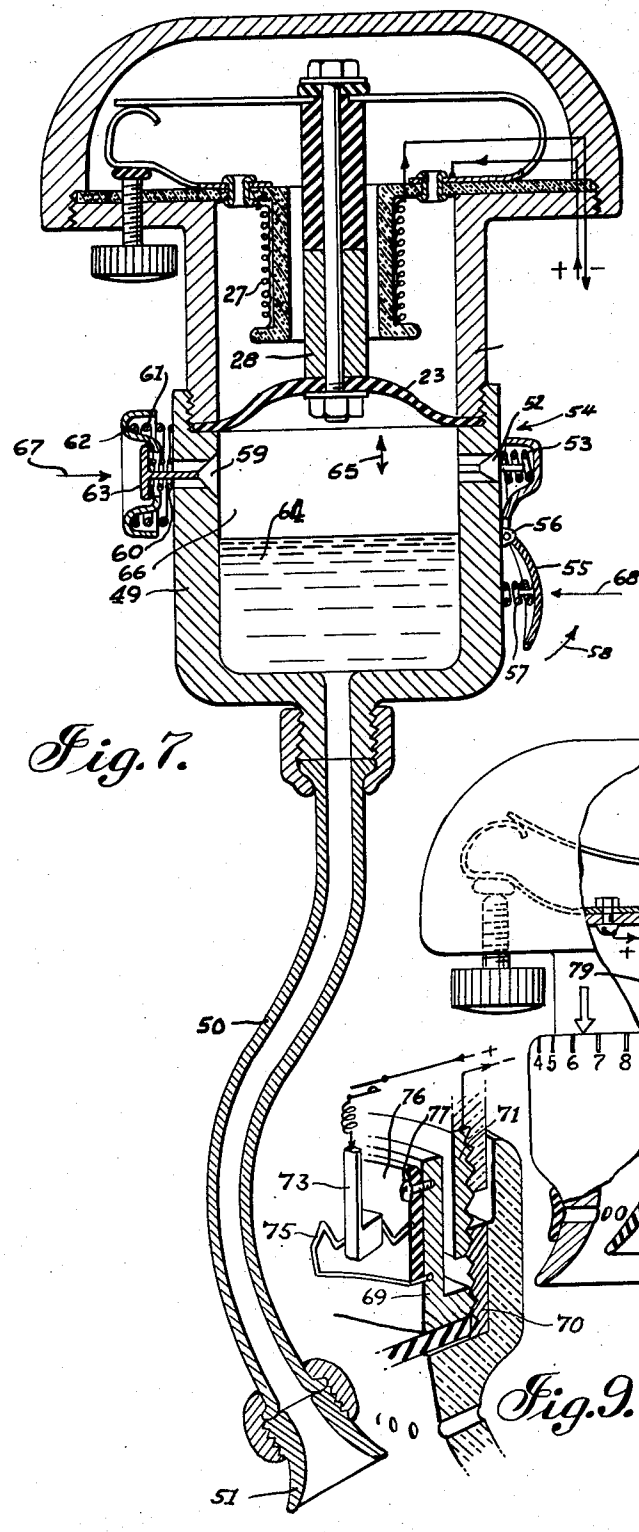


Fig. 7.

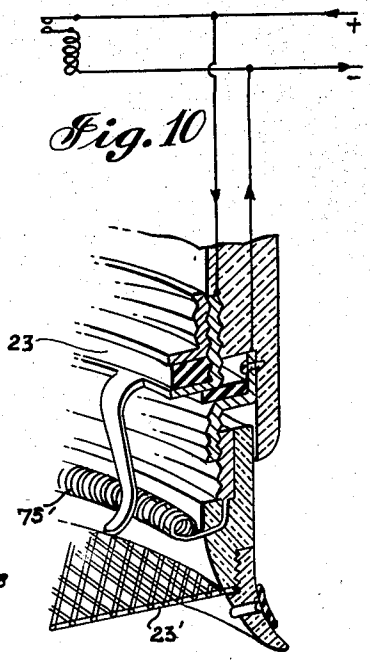


Fig. 10

Fig. 8.

Fig. 9.

INVENTOR.
Octavio Jose Alvarez
BY
Mcdaniel & Son
Agents

Oct. 17, 1950 O. J. ALVAREZ 2,526,190

MASSAGING DEVICE

Filed July 17, 1947 3 Sheets-Sheet 3

Fig. 11.

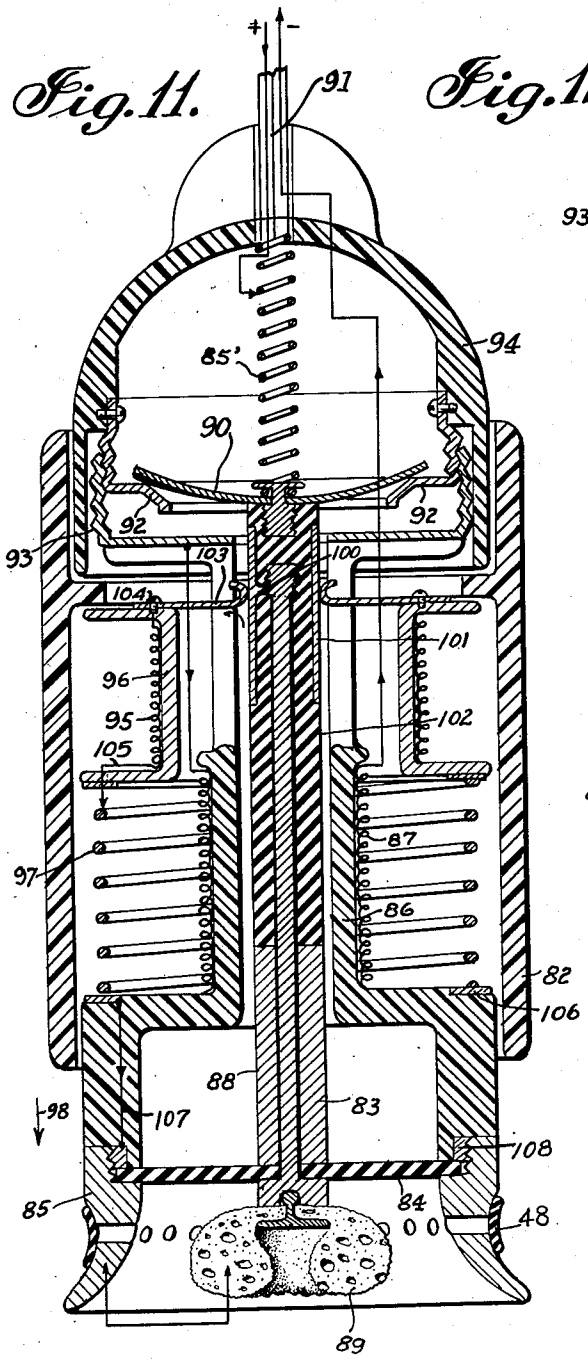
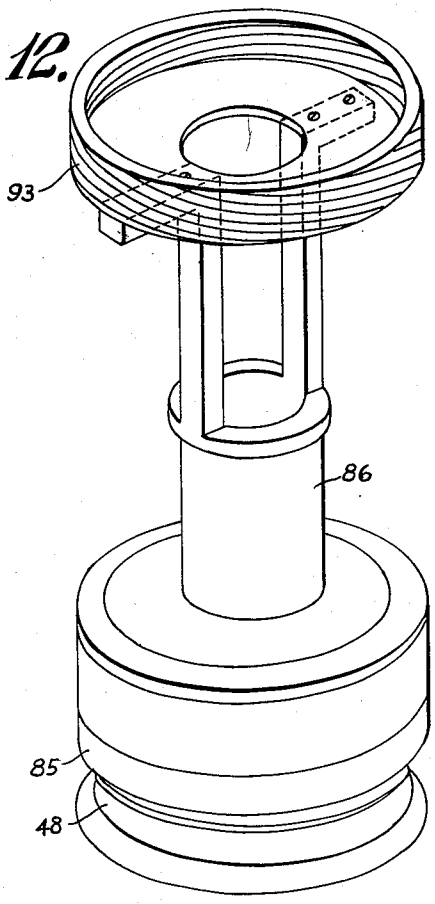


Fig. 12.



INVENTOR.
Octavio Jose Alvarez
BY

Patented Oct. 17, 1950 2,526,190

UNITED STATES PATENT OFFICE

2,526,190

MASSAGING DEVICE

Octavio Jose Alvarez, New York, N. Y., assignor to Alvarez Patent Corporation, New York, N. Y.

Application July 17, 1947, Serial No. 761,592

10 Claims. (Cl. 128—24.1)

1

My present invention relates to massaging devices and more particularly to massaging devices combined with means for applying a cosmetic fluid or cream to the skin.

It is an object of my present invention to provide a massaging device constructed so as to create intermittent suction on the surface of the skin and to prevent creation of air pressure at the skin surface.

It is another object of my present invention to provide a massaging device combined with means for creating an intermittent pulsating suction effect upon the skin while oscillating the device.

It is a further object of my present invention to provide a massaging device which is adapted not only for massaging the skin but also for application of cosmetic fluids or creams thereto.

It is still a further object of my present invention to provide a massaging device which is not only adapted to compress the skin tissues but also adapted to lift the skin and thereby to expand the pores and channels leading to the inner tissue layers of the skin.

Still another object of my present invention consists in a massaging device provided with means for mechanically opening the pores of the skin so as to enable penetration of an ointment into the same during massaging.

Still a further object of my present invention is to combine, with a massaging device of the type proposed by me, means for creating electrical shocks of adjustable strength during the massaging process.

With the above objects in view, my present invention mainly consists in a massaging device comprising in combination a stationary body member, an oscillating massaging member mounted on this stationary body member slidably between inoperative and operative positions, spring means permanently tending to slide this oscillating member from its inoperative into its operative position, a solenoid arrangement mounted on the above mentioned stationary body member and adapted to slide, when energized, said oscillating massaging member from operative into inoperative position, an electric circuit connected with this solenoid arrangement and adapted to be connected with a source of electric current so as to enable energization of the above mentioned solenoid arrangement and sliding of the oscillating massaging member from inoperative into operative position, and switch means mounted on the above mentioned stationary body member and included in the electric circuit in such a manner as to be in closed position while

2

the oscillating massaging member is sliding and while it is in operative position and to be automatically opened by this oscillating massaging member when the same reaches its inoperative position.

An arrangement of the above proposed type is extremely simple and has furthermore the advantage of providing the possibility of including, in the device, means for adjusting the switch means for varying the closing and opening times of the switch, thereby adjusting the amplitude and frequency of the oscillations of the oscillating massaging member described above.

In accordance with a preferred embodiment of my present invention, the switch means include a contact member mounted on the stationary body member and a contact member mounted on the oscillating massaging member, and the adjusting means for the switch consist of a device for adjusting the position of the contact member mounted on the stationary body member so as to vary the closing and opening times of this switch.

My new massaging device is preferably equipped with a substantially cup-shaped end member mounted on the stationary body member so as to contact with its rim the skin to be massaged. In case of provision of such an end member, the massaging member is arranged within this end member, oscillatably in a direction normal to the skin to be massaged and the oscillating driving means are mounted within the stationary body member operatively connected with the massaging member.

In order to prevent air pressure within the cup-shaped end member, I provide in the wall of this member outlet valve means which are adapted to decrease the pressure within this end member during oscillation of the massaging member.

I have found it advisable to provide between the stationary body member and the cup-shaped end member a resilient flexible membrane and to pass through this membrane the means connecting the oscillating driving means within the body member with the massaging member within the cup-shaped end member.

In accordance with a particularly preferred embodiment of my present invention, I use a massaging sponge member and combine the same with a conical stretching member, preferably a conical brush member, surrounding the massaging sponge member so as to contact the skin along the edges of the area contacted by the massaging sponge member when the same is pressed against the skin. Arrangement of this

conical stretching member has the purpose of stretching the skin during its contact with the massaging member, thereby opening the pores of the skin and enabling penetration into the same of an ointment applied by the massaging member.

I wish to note in this connection that with a device according to my present invention it is possible to create a reduced pressure, i. e. partial vacuum, at the skin surface and to apply simultaneously, i. e. during creation of such partial vacuum, an ointment to the skin by applying such ointment to the massaging sponge member and to press the same against the skin.

The novel features which I consider as characteristic for my invention are set forth in particular in the appended claims. The invention itself, however, both as to its construction and its mode of operation, together with additional objects and advantages thereof, will be best understood from the following description of specific embodiments when read in connection with the accompanying drawings, in which:

Fig. 1 is a top view of a massaging device of the type proposed by me, with the top cover removed;

Fig. 2 is an elevational section through the massaging device shown in Fig. 1, along line 2—2 of Fig. 1;

Fig. 3 is an elevational section through the massaging sponge and some other details of the massaging device shown in Figs. 1 and 2;

Fig. 4 is a perspective view of some details of the massaging device shown in Figs. 1 to 3;

Fig. 5 is an elevational section through a modified massaging member combined with a conical brush;

Fig. 6 is a perspective view of the massaging member shown in Fig. 5;

Fig. 7 is a longitudinal section through a modified massaging device;

Fig. 8 is an elevational section through still another modification of the massaging device shown in Figs. 1 to 4;

Fig. 9 is a perspective view, partly in section, of a detail of the massaging device shown in Fig. 8;

Fig. 10 is a perspective view, partly in section, of a detail of a modification of the massaging device shown in Figs. 8 and 9;

Fig. 11 is an elevational section through still a further modification of the massaging device shown in Figs. 1 to 4; and

Fig. 12 is a perspective view of a part of the massaging device shown in Fig. 11.

The massaging device shown in Figs. 1 to 4 includes a stationary cylindrical housing 20, the upper end of which is closed by the insulating disc 21; this disc is held in proper position by means of the substantially hemispherical cover 22, screwed at 23' to the cylindrical housing 20.

The front end of the cylindrical housing 20 is closed by the resilient flexible rubber membrane 23 having a relatively strong spring action. This rubber membrane 23 is held in proper position by the cup-shaped end member 24, as clearly shown in Fig. 2, by means of the screw threading 25.

The insulating disc 21 is provided with a tubular extension 26 about which the solenoid coil is wound.

A core member 28 is slidably arranged within the tubular member 26. This core member consists partly of metal, as indicated by numeral 29, and partly of rubber, as indicated by numeral 30.

At its front end, the metallic portion 29 of the core member 28 is secured to the rubber membrane 23 and to the massaging sponge 31 by means of the attaching member 32.

At its rear end, the rubber portion 30 of the core member 28 is attached to the leaf spring 33 forming together with the contact member 34 a switch included in the circuit 35 adapted to connect the solenoid coil 27 with a source of electric current 36.

It is evident that if circuit 35 is connected with the source of electric current 36, the solenoid 27 will be energized and pull the metallic portion 29 of the slidable core 28 in the direction of arrow 37, thereby moving the massaging sponge 31 from operative into inoperative position. In order to enable return of the sponge by spring action of the flexible rubber membrane 23 into operative position in contact with the skin, it is necessary to interrupt the energizing current the moment the slidable core 28 reaches its uppermost inoperative position in which position the leaf spring 33 assumes the position indicated in Fig. 2 by the dotted line 38.

In this position, the contact between the spring-shaped contact member 33 and the contact member 34 will be interrupted by the inertia of the sliding core 28 and the solenoid coil 27 will be deenergized. This will enable the resilient rubber membrane 23 to pull the slidable core 28 together with the massaging sponge 31 in the direction opposite to that indicated by arrow 37, into the operative position shown in Fig. 3.

During sliding of the core 28 from operative into inoperative position, the leaf spring contact member 33 will again contact the contact member 34, energizing the solenoid coil 27. Such energization will cause the solenoid coil 27 together with sponge 31 to return into inoperative position as soon as they have reached the operative massaging position shown in Fig. 3.

From above follows that the combined action of the solenoid coil 27 and the flexible rubber membrane 23 will cause the core member 28 together with the applicator massaging sponge 31 to oscillate to and fro in and opposite to the direction of arrow 37, as described above. Such oscillation of the membrane 23 will cause variation of the air space within the massaging chamber formed by the cup-shaped end member 24 at the front end of the cylindrical housing 20. Such variation of the air space within the massaging chamber, in turn, will result in increase and decrease of the air pressure within the massaging chamber, causing a massaging effect upon the skin of the user pressed against the cup-shaped end member 24.

In order to adjust the amplitude and intensity of such oscillations, I provide in accordance with my present invention an adjusting screw 39 arranged, as clearly shown in Fig. 2, and enabling moving of the contact member 34 in the direction of arrow 40. This contact member has a spring action tending to move it permanently in the direction opposite to the direction indicated by arrow 40. In this manner, it is possible to adjust, by turning of screw 39, the position of the contact member 34. This, in turn, enables adjustment of the time of making and breaking of contacts between the two contact members 33 and 34, causing variations of the amplitude and intensity of the oscillations of the core member 28 and the massaging sponge 31.

In order to enable ointments applied by means of the massaging sponge 31 to penetrate into

the pores of the skin, I provide, in accordance with my present invention, around the massaging sponge, a preferably conical stretching member 41, adapted to press along its edge 42 against the skin so as to stretch the same so as to open the pores 44 and enable penetration of the ointment 45 into the same while the air trapped under the stretching member escapes in the direction of arrow 43.

Fig. 5 shows a modified stretching member. While the member 41 shown in Fig. 3 consists of rubber, the stretching member shown in Figs. 5 and 6 is composed of bristles and the like and forms a conical brush 46 having simultaneously a stretching and skin activating effect.

It is evident that vibration of the membrane 23 would create within the space in the cup-shaped end member 24 a certain air pressure during the periods it is oscillating towards the skin. In order to avoid such air pressure within the member 24, I provide, in the wall of the same, outlet valve means consisting of a plurality of holes 47 covered by a resilient rubber band 48, as clearly shown in Figs. 2 and 4. This valve means has the effect of permitting the air to escape during bending of the membrane 23 towards the skin while preventing air from entering while the membrane is bending away from the skin in the direction of the arrow 37. This, in turn, will result in decrease of the air pressure within the end member 24, creating a partial vacuum within the same. It is evident that such partial vacuum in turn will have a certain intermittent pulsating pressure-suction effect upon the skin.

It is also evident that during downward movement of the membrane 23, i. e. during bending of the membrane towards the skin, the skin will actually soak in the ointment which has been deposited thereon by the sponge 31.

The modification shown in Fig. 7 is similar in many respects to the massaging device shown in Figs. 1 to 4 and described above. However, instead of securing to the front end of the solenoid core 28 a massaging member, the end member has the shape of a closed fluid container 49 provided with a flexible applicator tube 50 having at its end an applicator nozzle 51.

In the wall of the fluid container 49, I provide an outlet valve 52 pressed by the relatively weak spring 53 in the direction of arrow 54. Action of this spring 53 is supported by the double armed lever 55 pivoted at 56 to the fluid container 49 and permanently turned by the relatively strong spring 57 in the direction of arrow 58.

Similarly, I provide in the wall of the fluid container 49 also an inlet valve 59 permanently pressed by means of the relatively weak spring 60 against its seat. Action of this spring 60 is supported by the relatively strong spring 61 acting upon the valve member 59 by means of the operating knob 62 directly engaging the disc-shaped end portion 63 of the valve member 59, as shown.

In order to operate this massaging device, the fluid container 49 and the applicator tube 50 are partly filled with a massaging fluid or ointment 64, as clearly shown in Fig. 7.

When the solenoid 27, forming part of this device, is connected with a source of electric current, the membrane 23 will start to oscillate in the directions of arrow 65. Such oscillation will result in creation of intermittent over pressure and partial vacuum in the air space 66 within the fluid container 49 which, in turn, will result in oscillations of the massaging fluid or ointment 64. Such oscillations of the fluid or ointment can be transmitted to the skin by holding the applicator nozzle 51 against the same.

If neither the inlet nor the outlet valve is manually operated, the air within the space 66 will be oscillated and both valves will remain closed since the variations of the air pressure are insufficient to overcome the action of the relatively strong springs 57 and 61.

If it is desired to force, during massaging, part of the massaging ointment 64 into the skin, it is necessary to press with one finger against the operating knob 62, moving the same downward in the direction of arrow 67 and permitting thereby the valve member 59 to admit air during upward movement of the membrane 23 while closing the valve during downward movement of the membrane. During downstroke of the diaphragm 23 the air within the air space 66 will be compressed, causing increase of the air pressure, forcing the massaging ointment 64 outward through tube 50 and nozzle 51.

If it is desired to create, during massaging, a certain suction effect, it is only necessary to press the lever 55 downward in direction of arrow 68, thereby enabling the valve member 52 to permit escape of air from the air space 66 during downward movement of the membrane 23 while during upward movement of the membrane the valve 52 will remain closed due to action of the spring 53. This will result in partial vacuum within the air space 66 which, in turn, will cause the desired suction effect when membrane 23 moves upwardly.

The massaging device shown in Fig. 8 is very similar to the one shown in Fig. 1. The only difference is that the end member 69 is turnably mounted by means of the screw threaded member 70 to the bottom edge 71 of the cylindrical member 72 and that electrical means are provided for regulating the intensity of the oscillations and for simultaneously heating the end member.

These electrical means consist of a contact member 73 mounted on a disc member, as clearly shown in Fig. 8, and slidably engaging an electrical resistance member 75 provided on the inner surface of the annular rubber member 76 mounted on the inner face of the end member 69 by screw 77. The contact member 73 is connected at 78 with one end of the solenoid coil 79 wound on sleeve 74 while the resistance member 75 is connected by means of the metallic end member 69, the screw threaded member 70 and conductor 80 with the electric circuit 81.

It is evident that during operation of this massaging device the electric current energizing the solenoid coil 79 will have to pass through the resistance member 75, thereby decreasing the intensity of the current and simultaneously heating this resistance member.

It is possible to adjust the resistance included in the circuit by turning the end member 69 carrying the resistance member 75 and thereby slide the contact 73 mounted on the cylindrical member 72 along the resistance member 75, adjusting the relative position of said contact and said resistance member. In this manner, it is possible to adjust the temperature to which the end member 69 is heated and to adjust also the intensity of heat to which the skin is subjected.

The embodiment of my new massaging device shown in Fig. 10 is very similar to the one shown in Figs. 8 and 9, the only difference being that the heating spiral 75' is located inside of the end member 69 and under the membrane 23. In order

to prevent any injury to the skin, I provide between the heating spiral 75' and the skin a protective screen 23'. The intensity of heating by the heating spiral 75' is regulated in the same manner as set forth above in connection with the embodiment shown in Figs. 8 and 9.

In Figs. 11 and 12 I have shown still another modification of my massaging device. The massaging device shown in these figures consists of an outer stationary sleeve member 82. Within this sleeve member 82, I arrange, freely slidably, a massaging unit consisting of a partly metallic and partly insulating core 83 the front end of which is secured to the resilient rubber membrane 84.

This core member 83 is supported at its upper end by the spring member 85' arranged, as clearly shown in Fig. 11.

The rim of the resilient membrane 84 is firmly secured to the cup-shaped end member 85 which, in turn, is provided at its upper end with a sleeve 86 of insulating material through which the core 83 passes.

The solenoid coil 87 is wound about sleeve 86 so as to be adapted to attract the metallic portion 88 of the core 83 and to oscillate the same together with the massaging sponge 89 in the manner described above.

In order to provide for the necessary current interruptions, I arrange instead of a leaf spring serving as contact member as shown in Fig. 2, a contact spring 90 arranged as shown and electrically connected with the spring 85' which, in turn, is included into the electrical circuit 91 serving for energization of solenoid 87.

The contact spring 90 moves during oscillation into and out of contact with the stationary contact ring 92 screwed into the screw threaded sleeve 93 mounted on top of the insulating sleeve 86, as clearly shown in Fig. 12. By turning the hemispherical cover 94 together with the contact ring 92 in the screw threaded sleeve 93, it is possible to adjust the length of contact between the contact ring 92 and the contact spring 90 and thereby to adjust the amplitude and intensity of the oscillations of core 83, as explained above.

In order to enable creation of electric shocks of adjustable intensity during massaging, I provide within sleeve 82, a second coil 95 mounted on sleeve 96. I furthermore provide the coil spring 97 arranged so as to permanently tend to move the end member 85 in the direction of arrow 98. This secondary coil 95 is included into a circuit which includes the following consecutive elements: sponge 89, core 83, the connecting projection 100 of the metallic sleve 101 which is projecting through the rubber portion 102 of the core 83, the metallic sleeve 101 itself, the contact plate 103, the screw 104, the secondary coil 95, the wire connection 105, the coil spring 97, the metal contact plate 106, the electric wire 107, the metallic holding nut 108, the end member 85, and during use of the device the wet skin of the user contacting simultaneously the end member 85 and sponge 89. In this manner the circuit including the secondary coil 95 is closed during use of the device. It is evident that the secondary coil 95 can be energized by the primary coil 87 only when it surrounds the same at least partially. This occurs when the end member 85 together with the primary coil 87 mounted on the insulating sleeve 86 attached to the end member 85 is moved against the direction of arrow 98 relative to the sleeve member 82.

Thus, movement of the end member 85 against the direction of arrow 98 will result in energization of the coil 95 and creation of electrical shocks in the skin portion between the massaging sponge 89 and the rim of the end member 85 when the same is pressed against the skin. It is evident that by pressing the end member 85 more or less into the stationary sleeve member 82, it is possible to adjust the degree of energization of coil 95 and the intensity of the electrical shocks created by the same.

It will be understood that each of the elements described above, or two or more together, may also find a useful application in other types of massaging devices, differing from the types described above.

While I have illustrated and described the invention as embodied in skin massaging devices, I do not intend to be limited to the details shown, since various modifications and structural changes may be made without departing in any way from the spirit of my invention.

Without further analysis, the foregoing will so fully reveal the gist of my invention that others can by applying current knowledge readily adapt it for various applications without omitting features that, from the standpoint of prior art, fairly constitute essential characteristics of the generic or specific aspects of this invention, and, therefore, such adaptations should and are intended to be comprehended within the meaning and range of equivalence of the following claims.

What I claim as new and desire to secure by Letters Patent is:

1. Massaging device comprising in combination a stationary body member; a substantially cup-shaped end member mounted at the front end of said stationary body member so as to be adapted to contact with its rim the skin to be massaged; a resilient flexible membrane dividing the space within said stationary body member from the space within said substantially cup-shaped end member; a recriprocable massaging member arranged within said cup-shaped end member to be movable in a direction normal to the skin to be massaged; reciprocating driving means mounted within said stationary body member and operatively connected through said resilient flexible membrane with said reciprocable massaging member so as to be adapted to simultaneously reciprocate said resilient flexible membrane and said reciprocable massaging member; and valve means arranged in the wall of said cup-shaped end member so as to vary the air pressure within the same during reciprocations of said resilient flexible membrane.

2. Massaging device comprising in combination a stationary body member; a substantially cup-shaped end member mounted at the front end of said stationary body member so as to be adapted to contact with its rim the skin to be massaged; a resilient flexible membrane dividing the space within said stationary body member from the space within said substantially cup-shaped end member; a reciprocable massaging member arranged within said cup-shaped end member and movable in a direction normal to the skin to be massaged; reciprocating driving means mounted within said stationary body member and operatively connected through said resilient flexible membrane with said reciprocable massaging member so as to be adapted to simultaneously reciprocate said resilient flexible membrane and said reciprocable massaging member; and outlet valve means arranged in the wall of

said cup-shaped end member so as to vary the air pressure within the same during reciprocations of said resilient flexible membrane.

3. Massaging device comprising in combination a stationary body member; a substantially cup-shaped end member mounted at the front end of said stationary body member so as to be adapted to contact with its rim the skin to be massaged; a resilient flexible membrane dividing the space within said stationary body member from the space within said substantially cup-shaped end member; a reciprocable massaging member arranged within said cup-shaped end member and movable in a direction normal to the skin to be massaged; reciprocating driving means mounted within said stationary body member and operatively connected through said resilient flexible membrane with said reciprocable massaging member so as to be adapted to simultaneously reciprocate said resilient flexible membrane and said reciprocable massaging member; and outlet valve means arranged in the wall of said cup-shaped end member so as to decrease the air pressure within the same during reciprocations of said resilient flexible membrane by said reciprocating driving means, whenever desired.

4. Massaging device comprising in combination a stationary body member; a substantially cup-shaped end member mounted at the front end of said stationary body member so as to be adapted to contact with its rim the skin to be massaged; a reciprocable massaging member arranged within said cup-shaped end member to be reciprocable between inoperative and operative position; a resilient flexible membrane dividing the space within said stationary body member from the space within said substantially cup-shaped end member and secured to said reciprocable massaging member so as to permanently tend to move the same into operative position; a solenoid arrangement mounted within said stationary body member and adapted to slide when energized said massaging member from operative into inoperative position while simultaneously bending said resilient flexible membrane; an electric circuit connected with said solenoid arrangement and adapted to be connected with a source of electric current so as to enable, when connected, energization of said solenoid arrangement and sliding of said reciprocating massaging member from operative into inoperative position; switch means mounted on said stationary body member and included in said electric circuit in such a manner as to be in closed position while said reciprocating massaging member is in sliding movement and while it is in operative position and to be automatically opened by said reciprocating massaging member when the same reaches its inoperative position; and outlet valve means arranged in the wall of said cup-shaped end member so as to vary the air pressure within the same during bending of said resilient flexible membrane.

5. Massaging device comprising in combination a stationary body member; a substantially cup-shaped end member mounted at the front end of said stationary body member so as to be adapted to contact with its rim the skin to be massaged; a massaging member arranged within said cup-shaped end member to be reciprocable between inoperative and operative position; a resilient flexible membrane dividing the space within said stationary body member from the space within said substantially cup-shaped end member and secured to said massaging member so as to permanently tend to move the same into operative position; a solenoid arrangement mounted within said stationary body member and adapted to slide when energized said massaging member from operative into inoperative position while simultaneously bending said resilient flexible membrane; an electric circuit connected with said solenoid arrangement and adapted to be connected with a source of electric current so as to enable, when connected, energization of said solenoid arrangement and sliding of said reciprocating massaging member from operative into inoperative position; switch means mounted on said stationary body member and included in said electric circuit in such a manner as to be in closed position while said reciprocating massaging member is in sliding movement and while it is in operative position and to be automatically opened by said reciprocating massaging member when the same reaches its inoperative position; and outlet valve means arranged in the wall of said cup-shaped end member so as to decrease the air pressure within the same during bending of said resilient flexible membrane by said oscillating driving means, whenever desired.

6. Massaging device comprising in combination a stationary body member; a substantially cup-shaped end member mounted at the front end of said stationary body member so as to be adapted to contact with its rim the skin to be massaged; a reciprocable massaging member arranged within said cup-shaped end member to be reciprocable between inoperative and operative position; a resilient flexible membrane dividing the space within said stationary body member from the space within said substantially cup-shaped end member and secured to said reciprocable massaging member so as to permanently tend to move the same into operative position; a solenoid arrangement mounted within said stationary body member and adapted to slide when energized said massaging member from operative into inoperative position while simultaneously bending said resilient flexible membrane; an electric circuit connected with said solenoid arrangement and adapted to be connected with a source of electric current so as to enable, when connected, energization of said solenoid arrangement and sliding of said reciprocating massaging member from operative into inoperative position; switch means including a contact member mounted on said stationary body member and a contact member mounted on said reciprocating massaging member, said contact member being included in said electric circuit in such a manner as to be in closed position while said reciprocating massaging member is in sliding movement and while it is in operative position and to be automatically opened by said reciprocating massaging member when the same reaches its inoperative position; means for adjusting the position of said contact member mounted on said stationary body member so as to vary the closing and opening times of said switch thereby adjusting the amplitude and frequency of reciprocations of said reciprocating massaging member; and outlet valve means arranged in the wall of said cup-shaped end member so as to decrease the air pressure within the same during bending of said resilient flexible membrane by said reciprocating driving means, whenever desired.

7. A massaging device comprising in combina-

tion a hollow massaging member forming at its front end a massaging chamber, said massaging member being open at its front end and having a rim around said open front end adapted to be applied to the skin of the user; a resilient flexible membrane within said massaging member extending in transversal direction and spaced from said open front end of the same so as to form a resilient flexible rear wall of said massaging chamber which extends between said membrane and said open front end of said hollow massaging member; and means for reciprocating said resilient flexible membrane so as to intermittently vary the air space within said massaging chamber.

8. A massaging device comprising in combination a hollow massaging member forming at its front end a massaging chamber, said massaging member being open at its front end and having a rim around said open front end adapted to be applied to the skin of the user; a resilient flexible membrane within said massaging member extending in transversal direction and spaced from said open front end of the same so as to form a resilient flexible rear wall of said massaging chamber which extends between said membrane and said open front end of said hollow massaging member; and electrical means for reciprocating said resilient flexible membrane so as to intermittently vary the air space within said massaging chamber.

9. A massaging device comprising in combination a hollow massaging member forming at its front end a massaging chamber, said massaging member being open at its front end and having a rim around said open front end adapted to be applied to the skin of the user; a resilient flexible membrane within said massaging member extending in transversal direction and spaced from said open front end of the same so as to form a resilient flexible rear wall of said massaging chamber which extends between said membrane and said open front end of said hollow massaging member; means for reciprocating said resilient flexible membrane so as to intermittently vary the air space within said massaging chamber; and outlet valve means arranged in the wall of said hollow massaging member so as to decrease the air pressure within said massaging chamber during vibrations of said resilient flexible membrane by said means for reciprocating the same.

10. A massaging device comprising in combination a hollow massaging member forming at its front end a massaging chamber, said massaging member being open at its front end and having a rim around said open front end adapted to be applied to the skin of the user; a resilient flexible membrane within said massaging member extending in transversal direction and spaced from said open front end of the same so as to form a resilient flexible rear wall of said massaging chamber which extends between said membrane and said open front end of said hollow massaging member; electrical means for reciprocating said resilient flexible membrane so as to intermittently vary the air space within said massaging chamber; and outlet valve means arranged in the wall of said hollow massaging member so as to decrease the air pressure within said massaging chamber during vibrations of said resilient flexible membrane by said electrical means for reciprocating the same.

OCTAVIO JOSE ALVAREZ.

REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
794,003	Gates	July 4, 1905
886,984	Jopling	May 5, 1908
942,206	Jones	Dec. 7, 1909
1,420,049	Mashek	June 20, 1922
1,594,636	Smith	Aug. 3, 1926
1,658,278	Bardach et al.	Feb. 7, 1928
1,704,960	Ackerman	Mar. 12, 1929
1,889,487	Nachies	Nov. 29, 1932
1,974,031	Merrill	Sept. 18, 1934
2,097,455	Fisher	Nov. 12, 1937
2,261,385	Kaminsky et al.	Nov. 14, 1941

FOREIGN PATENTS

Number	Country	Date
63,702	Switzerland	Mar. 10, 1913