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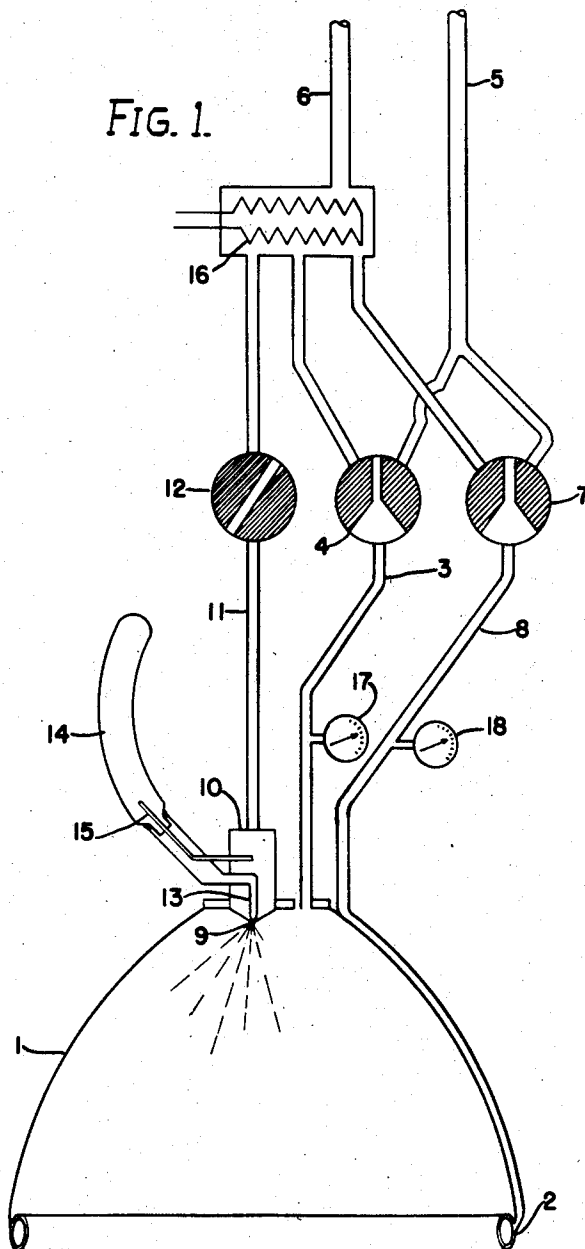
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APPARATUS FOR A PERCUTANEOUS TREATMENT

Filed June 14, 1948

3 Sheets-Sheet 1



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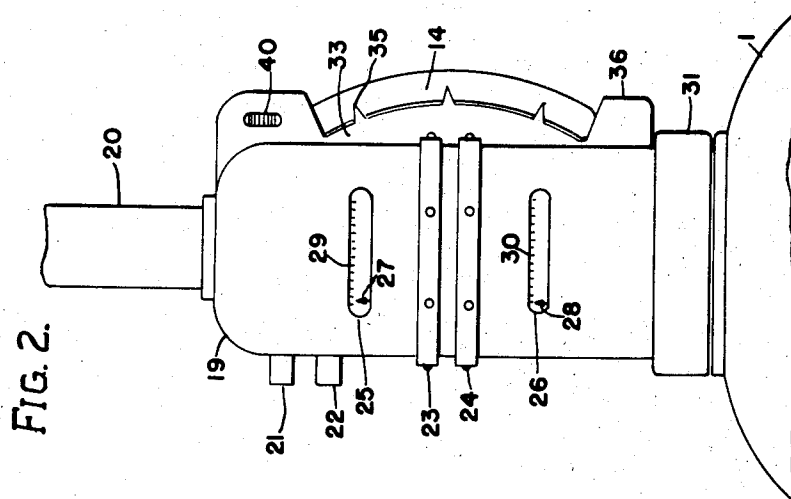
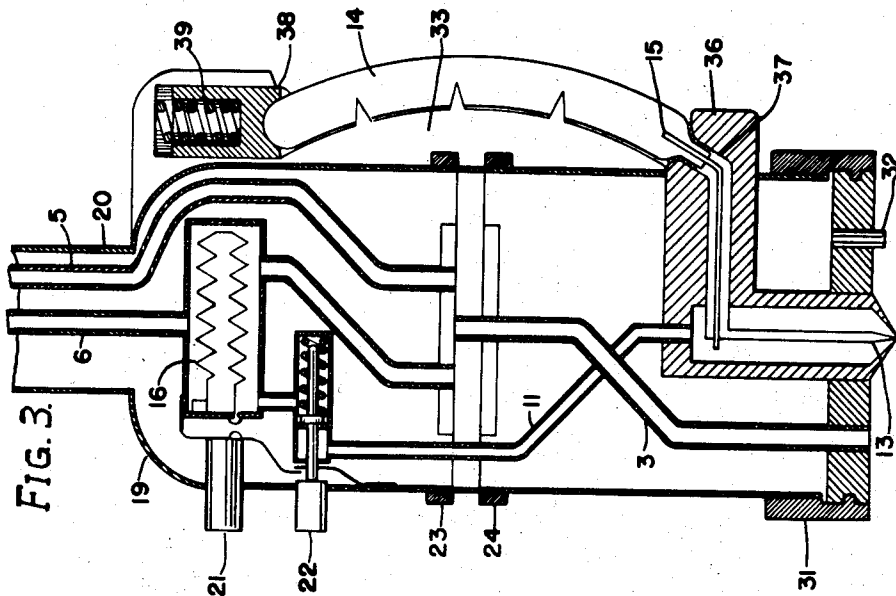
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APPARATUS FOR A PERCUTANEOUS TREATMENT

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3 Sheets-Sheet 2



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APPARATUS FOR A PERCUTANEOUS TREATMENT

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3 Sheets-Sheet 3

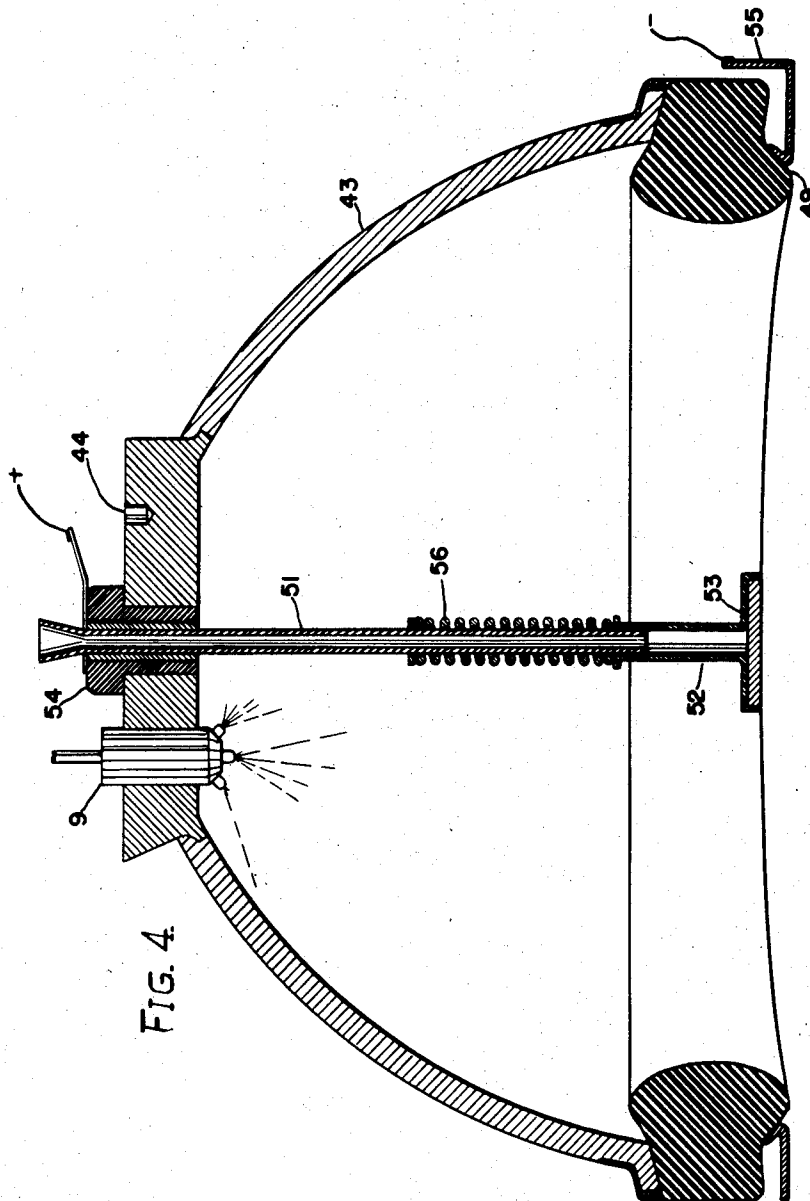


FIG. 4

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APPARATUS FOR A PERCUTANEOUS
TREATMENT

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2 Claims. (Cl. 128—24.1)

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This invention relates to an apparatus for the treatment of the scalp to stimulate circulation of blood therein and may be applied to other parts of the body to reactivate capillary action in those parts.

One object of the invention is to provide an apparatus whereby negative and positive pressures can be applied to a surface area of the body in combination with the application of a medicinal preparation to increase circulation of blood through the treated area.

Another object is to provide apparatus whereby electric current may be applied to a surface area of the body in combination with the application of negative and positive pressures and a medicinal preparation.

The invention in general comprises a device having a cap portion which is sealed over the surface of the body to be treated and positive and negative electrodes are employed with the cap for application to the body section covered by the cap. In addition means are provided in a housing member associated with the cap comprising a plurality of passages and valve means with operating apparatus to atomize a medicinal preparation into contact with the body area being treated as well as apply negative and positive pressures to such area. The application by the apparatus of the current, pressures and medicinal preparation is directed to stimulating the circulation of blood in the treated area to reactivate the same into a healthy condition.

Figure 1 is a schematic view of the apparatus of the invention;

Fig. 2 is an elevational view of the adjustment head or housing;

Fig. 3 is a vertical sectional view of the adjustment head; and

Fig. 4 is a vertical sectional view of a helmet with electrodes, which helmet could be secured to the head or housing.

As shown in a general manner in Figure 1, an apparatus in accordance with the invention comprises a chamber or helmet 1, to be applied on the area of the body to be treated. This chamber has a shape corresponding to the area to be treated; in Figure 1 it has the shape of a semi-spherical helmet and it is designed for scalp treatment. The chamber 1 comprises at its base a toroidal pneumatic hollow expansible rim, 2, which is applied on the area to be treated and constitutes a tight closure against the entrance or the exit of air.

At its upper part, the chamber 1 comprises a tube 3 which may, at will, communicate, by

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means of a cock 4 with a suction tube 5 or a compressed air line 6 for producing within chamber 1 a depression or an excess pressure. Tubes 5 and 6 also communicate through a cock 7 and a tube 8 with the inside of joint 2 to allow the inflation or the retraction of the hollow rim.

Finally, an atomizer 9 makes it possible to pulverize a cosmetic product inside chamber 1. The atomizer 9 comprises an orifice 10 for the supply of compressed air and an orifice 13 for the supply of the product. Orifice 10 communicates through a tube 11 and a cock 12 with the compressed air line 6. Orifice 13 communicates with the bulb 14 containing the product. A small tube 15 communicating with tube 11 allows the flow of the liquid.

Figure 1 also shows an electrical resistance 16 which allows the heating of the compressed air.

A pressure gauge 17 on tube 3 and a pressure gauge 18 on tube 8 make it possible, at any instant, to measure the pressure inside chamber 1 and inside the pneumatic rim 2.

We shall now describe in greater detail the apparatus listed and schematically described above.

Actually, the tubes 3, 8 and 11, the cocks 4, 7 and 12, the atomizer 9, the bulb 14, the electrical resistance 16 and the pressure gauges 17 and 18 are all mounted inside a casing or adjustment head 19 (Figures 2 and 3) and chamber 1 is removable and interchangeable. In this manner, to treat various areas of the body, it is only necessary to mount on the adjustment head 19 the chambers 1 having a shape suitable for the area to be treated.

The adjustment head comprises a cylindrical casing having at its upper part a tube 20 which contains the tubes 5 and 6 of suction and of compressed air supply.

On head 19 are mounted a switch 21 for the heating circuit of resistance 16, a button 22 for the control of cock 12 and rings 23 and 24 for the control of cocks 4 and 7.

Windows 25 and 26 make it possible to follow the displacements of the pointers 27 and 28 of the pressure gauges 17 and 18 in front of their scales 29 and 30.

The lower part of head 19 comprises a ring 31 which is secured to casing 19 and within which is held helmet 1 by a tongue and groove interlock, as shown in Fig. 3, to insure the fixation of chamber 1 on the adjustment head. A pin 32 ensures the correct position of the chamber with respect to the adjustment head.

The devices for the fixation of the bulb 14 on the adjustment head 19, are shown in Figure 3.

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These devices comprise a support 33 whose bearing surface has a curvature substantially identical with that of the bulb 14. Preferably, the support 33 has regularly spaced reference marks 35. When the bulb is placed in position, the marks 35 protrude on each side of the bulb to indicate the height of the product in the bulb for control of the amount of the product applied.

The lower end of the bulb 14 rests on a gasket 36 through which passes the tube 15 for the air supply and the tube 37 connects to bulb 14 for the flow of the product to the orifice 13.

The upper end of the bulb 14 is held by a plunger 38 upon which acts a spring 39 which pushes the plunger 38 towards the gasket 36. A knurled catch 40 allows an upward displacement of the plunger 38 for setting the bulb 14 in position.

Figure 4 shows a helmet. It is arranged to allow the application of a direct electric current to the area treated. A tub 51 goes through its center and enters at its lower part, into a shorter tube 52 which carries a circular anode 53. The tube 51 goes through the upper part of the helmet through the insulating bushing 54 and is connected to the positive terminal of a suitable electric circuit. A spring 55 tends to maintain the anode 53 against the skin.

The base of the helmet comprises a conducting ring 56 which forms the cathode and which is connected to the negative terminal of the electric circuit. The electric circuit is set up in such a way that the current of electrophoresis remains constant, whatever may be the variations in the resistance of the area treated by virtue of its condition of dryness or of great or small humidity. A mortise 57 for receiving the pin 32 of the adjustment head insures a correct assembly of the head and cap.

The operation of the invention is as is described hereinafter. The first stage of the treatment comprises application of suction pressure to the scalp as described with reference to employment of the apparatus by way of illustration. At the same time the scalp is subjected to a flow of electric current from anode 53 to cathode 56. These combined actions cause a hyperemia in the scalp or a substantial increase of the circulation of the blood therein making the scalp receptive to the medicinal product which is then applied by the atomizer 9. The medicinal product is of a type wherein under the phenomena of ionophoresis, the product is separated or broken up into parts tending to move with the current toward the cathode and become diffused through- out the scalp being treated.

After a short period the suction is replaced by compression or an inwardly directed pressure which presses the medicaments into the sebaceous glands as far as to the roots of the hair. In order to more fully accomplish the diffusion of the medicine in the scalp, suction and inwardly directed pressure are next alternately applied to stimulate the flow of blood and at the same time the electric current is applied and cutoff to stimulate the scalp and distribute the medicinal product to the desired spots in the scalp. This operation is followed by continuing for some time the application of the inwardly directed pressure.

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Tests have indicated that in the case of the scalp a treatment such as that described, if regularly continued for several weeks results in the growth of new hair and stimulates the growth of existing hair.

Various embodiments of the invention may be employed as set forth in the accompanying claims.

What I claim is:

1. In apparatus for the treatment of a surface area of the body to reactivate capillary action therein, a housing member of generally cap shape at the lower end providing a hollow chamber in the lower end thereof, means on the lower end of the housing to seal the same to the area of the body being treated, a suction passage through said housing and connected to a source of negative pressure, a pressure passage through said housing and connected to a source of positive pressure, a passage through said housing for the atomization of a medicinal preparation to be applied to the area of the body being treated, and separate valve means in said passage to control the application of negative pressure to the body area to increase circulation of blood or positive pressure thereto to similarly increase circulation of blood and apply the medicinal preparation thereto through the atomization passage.

2. In apparatus for the treatment of a surface area of the body to reactivate capillary action therein, a housing member of generally cap shape at the lower end providing a hollow chamber in the lower end thereof, means on the lower end of the housing to seal the same to the area of the body being treated, a suction passage through said housing and connected to a source of negative pressure, a pressure passage through said housing and connected to a source of positive pressure, a passage through said housing for the atomization of a medicinal preparation to be applied to the area of the body being treated, separate valve means in said passage to control the application of negative pressure to the body area to increase circulation of blood or positive pressure thereto to similarly increase circulation of blood and apply the medicinal preparation thereto through the atomization passage under pressure, and positive and negative electrodes associated with said housing and disposed in contact with said body area for flow of electric current through the body area to diffuse the medicinal preparation therein after application.

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