Jan. 5, 1954 A. A. LA VERNE 2,664,884

SCALP MASSAGING DEVICE

Filed Nov. 7, 1949 4 Sheets-Sheet 1

Fig. 1

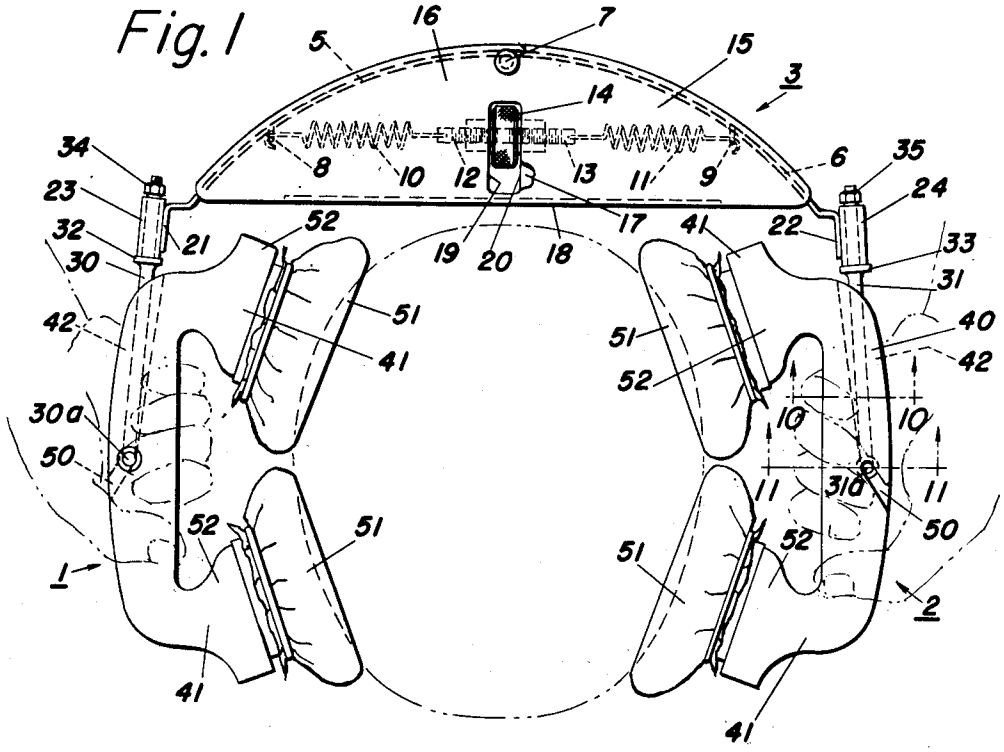
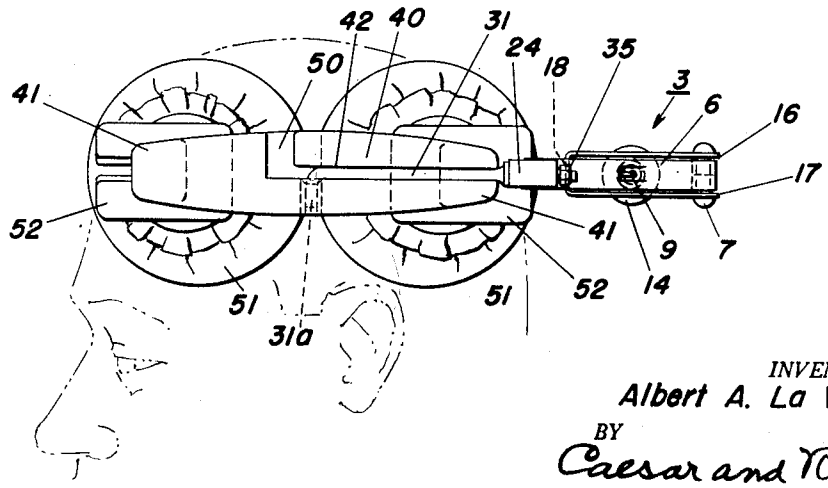


Fig. 2



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SCALP MASSAGING DEVICE

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Fig. 3

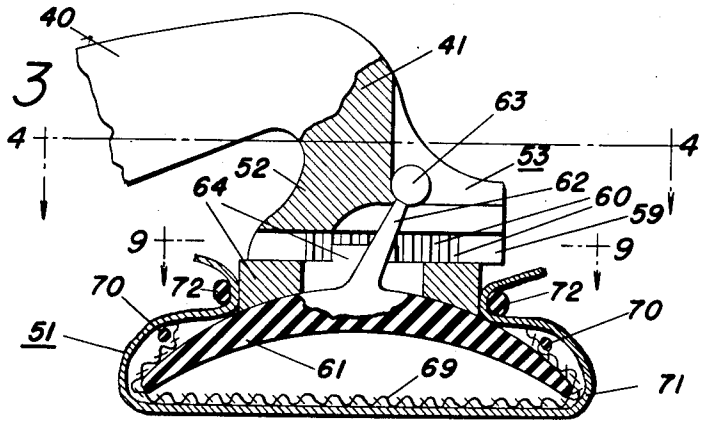


Fig. 4

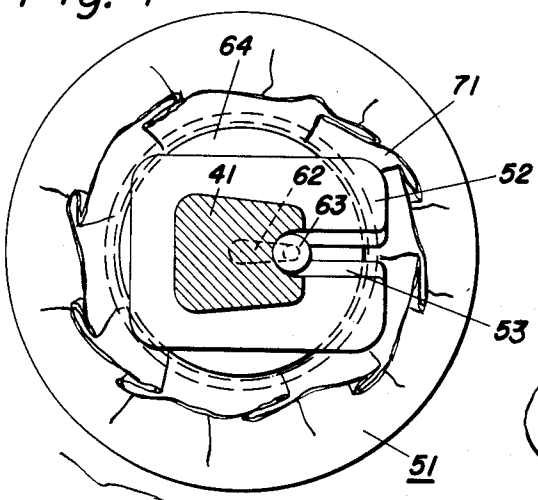


Fig. 5

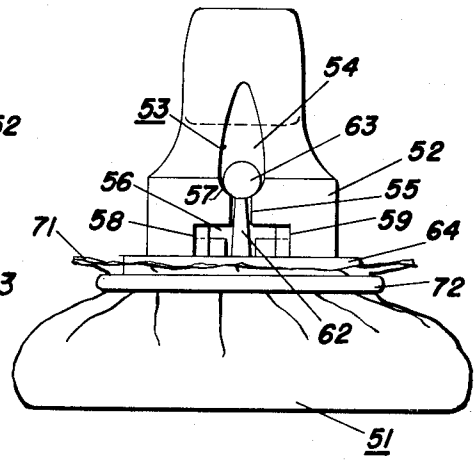


Fig. 6

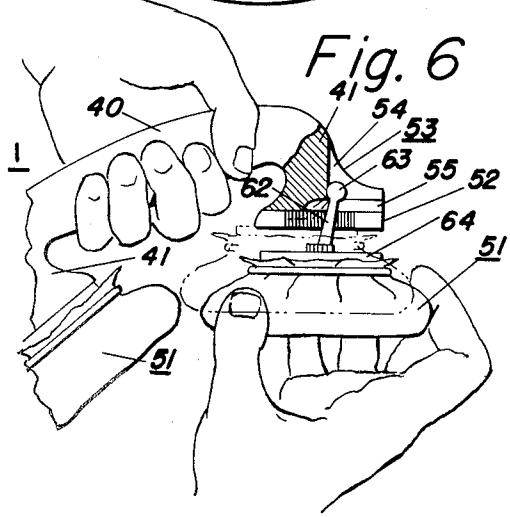
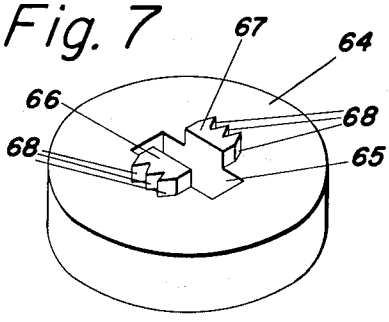


Fig. 7



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SCALP MASSAGING DEVICE

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Fig. 8

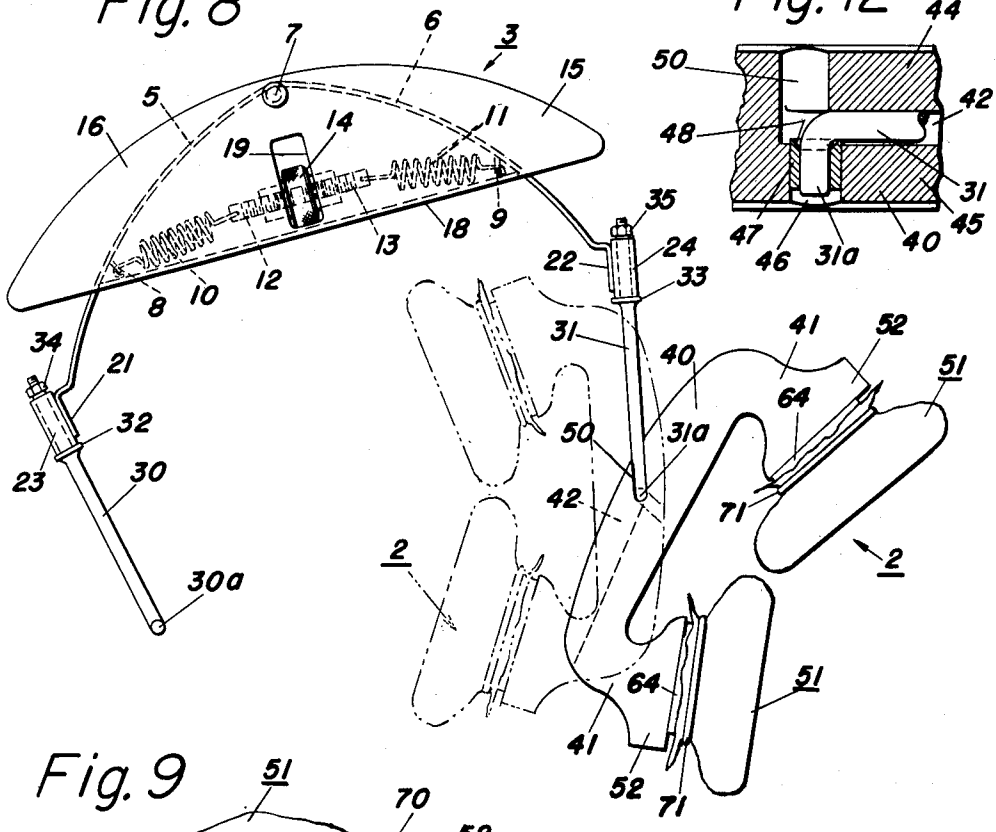


Fig. 12

Fig. 9

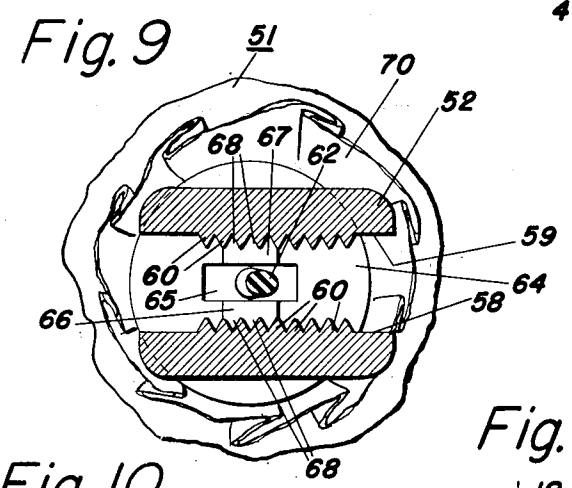


Fig. 10

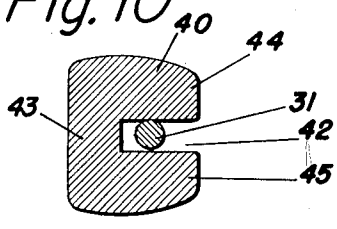
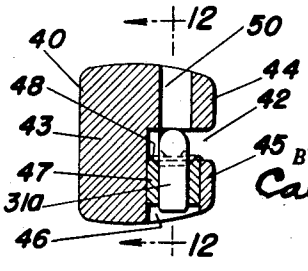


Fig. 11



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SCALP MASSAGING DEVICE

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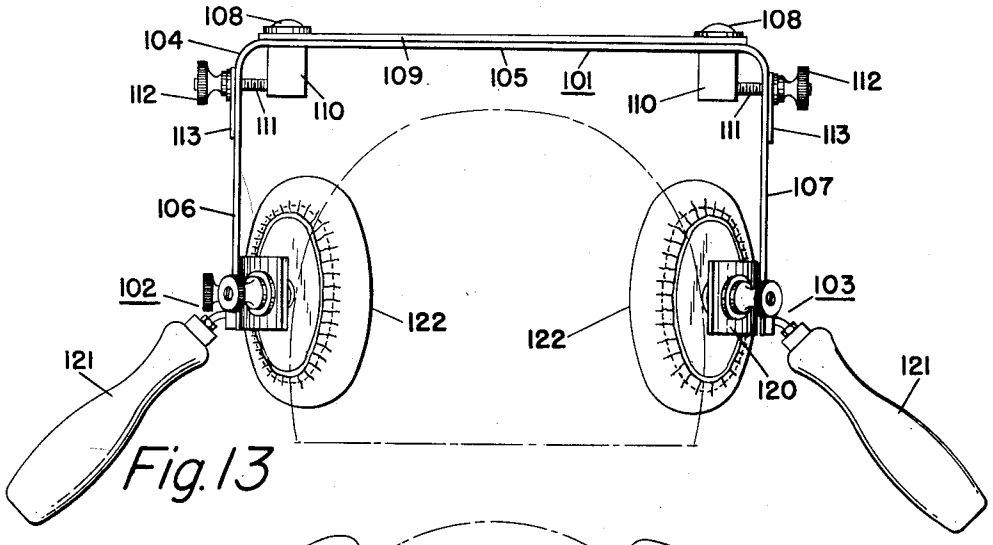


Fig. 13

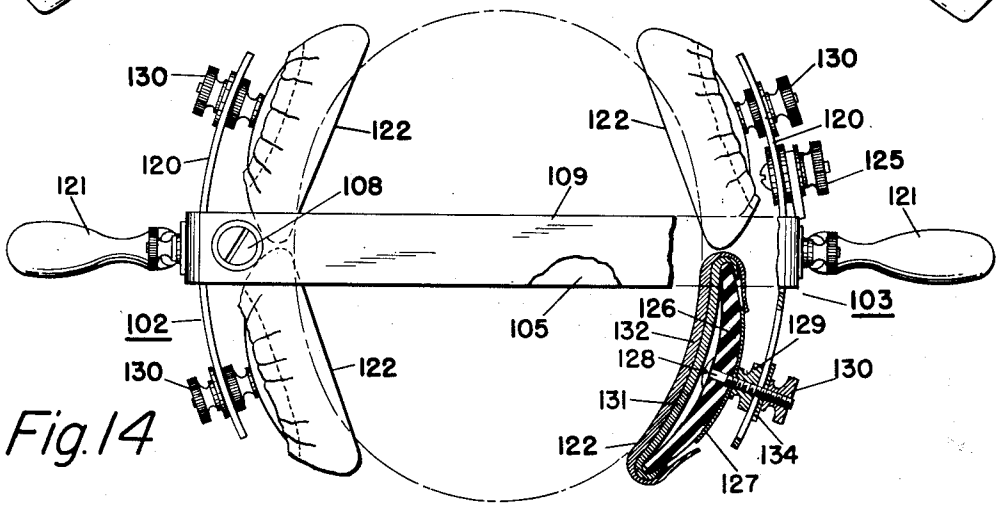


Fig. 14

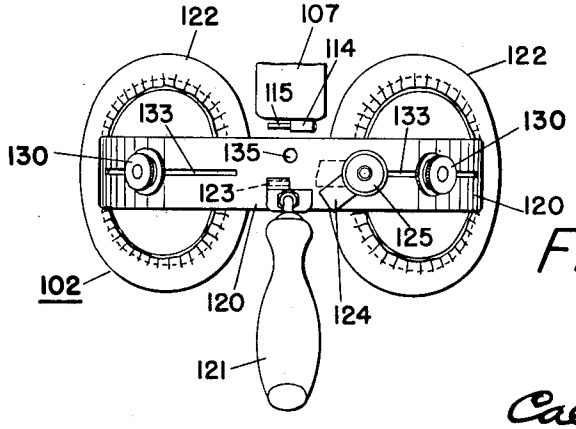


Fig. 15

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Patented Jan. 5, 1954 2,664,884

UNITED STATES PATENT OFFICE

2,664,884

SCALP MASSAGING DEVICE

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Application November 7, 1949, Serial No. 125,865

2 Claims. (Cl. 128—67)

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This invention relates to devices for manipulating the human scalp, and is particularly concerned with devices for massaging, stretching, loosening and elevating the scalp and for stimulating the skin thereof as well as the roots of the hair, thereby promoting circulation and improving the conditions necessary for the maintenance and growth of the hair.

By way of introduction, it may be stated that the immediate cause of the majority cases of premature loss of hair is the tightening of the scalp around the rigid bony structure of the skull. This tightening is a pathological process usually starting in a small or restricted area requiring many months to years to develop but eventually affecting the scalp in its entirety.

The pathological tightening of the scalp constitutes part of a vicious cycle. The initial tightening in a given area produces in addition to the progressive loss of hair a compressive type of circulatory obstruction to the affected area, and eventually to distal areas which have circulation that is subsidiary to the initially affected area, thereby reducing the nourishment to the hair roots and particularly to the secretory glands. This in turn results in desiccation, reduced pliability, atrophy, scarring and eventual shrinkage of scar tissue, and this process produces in its turn further tightening and an involvement of constantly increasing areas. The process is progressively aggravated and intensified by the gradual increase in the size of the skull, being severest in the areas where the scalp is stretched most tightly, namely at the promontories or acute angulations of the skull, which are usually at the temporal and occipital areas of the skull. The male skull increases to a greater extent than does the female skull, which accounts in some measure for the fact that premature loss of hair is more common among male adults than among females.

The manipulation of the scalp so as to promote hair growth may be carried out either manually or mechanically. Manual manipulation, i. e. the use of the hands and fingers, requires the expenditure of so much energy and has such a tiring effect on the operator that it is exceedingly difficult and in most cases impractical.

There have been many attempts to manipulate the scalp by means of hand operated and motor actuated massage devices, but none have fulfilled the necessary use requirements or have achieved any degree of consumer acceptance or commercial success. Prior art massaging devices were either incapable of producing the necessary

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manipulation of the scalp or served to apply too great pressure to the scalp. The scalp (with its appendages) is a highly complicated physiological organ, consisting as it does of delicate structures including nerves, blood vessels, glands, hair roots, fibrous and connective tissue, fat and muscle tissue, and any device intended to massage the scalp must be so constructed as to carry out its function without causing any injury thereto.

The primary object of the present invention is to provide a device for manipulating the human scalp so as to maintain and promote hair growth without causing injury to the delicate structure thereof.

Another important object is to provide a scalp manipulating device which is of relatively simple, inexpensive, rugged construction and which is capable of being used in the correct manner for its intended purpose by the patient himself or by an operator.

Another object of importance is to provide a scalp manipulating device capable of producing a very vigorous but nevertheless gentle massage action by the application of a surprisingly small amount of effort on the part of the operator.

Another object of the invention is to provide a scalp manipulating device which can be used to massage, stretch, loosen, elevate, brush and flush the scalp, one or more of these functions being carried out separately or simultaneously.

Another important object is to provide a scalp massaging device consisting of a relatively few units and elements, which can be readily assembled or disassembled by persons having little mechanical skill, which is wholly sanitary and which can be easily kept clean.

A further object is to provide a massage device which can be readily adjusted to fit a wide range of head sizes and shapes of skulls, and which can be adjusted within fairly wide limits to exert a desired amount of pressure on the scalp.

The underlying and directing concept of the invention is susceptible of being embodied in a variety of mechanical constructions. In its broadest essential details, the device of the invention comprises three principal parts, two massage units of identical construction and a connecting yoke, the massage units being detachably and adjustably connected to the extremities of the yoke, which serves to hold the massage units together for simultaneous use and provides the necessary pressure for effective operation.

The invention will now be described with particular reference to two presently preferred em-

bodiments thereof. Referring briefly to the drawings:

Figure 1 is a plan view of one of the presently preferred embodiments, showing the device applied to the head of a patient, the outline of the head and the hands of the operator being in broken lines;

Figure 2 is a side elevation, the outline of the head and of the upper part of the face being shown in broken lines;

Figure 3 is a vertical cross-section through one of the massage pads, showing its attachment to the massage unit;

Figure 4 is a cross-section taken on line 4—4 of Figure 3;

Figure 5 is an end view of one of the massage units;

Figure 6 is a view illustrating the method of adjusting the position of a massage pad on the massage unit, the final adjusted position of the pad being shown in broken lines;

Figure 7 is a perspective view of the adjustment element of a massage pad;

Figure 8 is a view illustrating the method of removing the massage units from the connecting yoke;

Figure 9 is a cross-section taken on line 9—9 of Figure 3;

Figure 10 is a cross-section taken on line 10—10 of Figure 1;

Figure 11 is a cross-section taken on line 11—11 of Figure 1;

Figure 12 is a cross-section taken on line 12—12 of Figure 11;

Figure 13 is a front elevation of a second preferred embodiment, shown in relation to the head;

Figure 14 is a plan view, one of the massage pads being shown in cross-section; and

Figure 15 is a side elevation, the massage units being shown detached from the yoke member.

Referring to Figures 1 to 12 of the drawings with greater particularity, it will be seen that the device of the first embodiment consists essentially of three principal parts, the massage units 1 and 2 and the connecting yoke 3. The yoke 3 serves to connect or hold the massage units together for simultaneous use, and provides the necessary pressure for effective operation. The massage units, which are of identical construction, are detachably and adjustably connected to the extremities of the yoke in the manner to be hereinafter described, and may be used separately and individually as will also be described.

The yoke 3 consists of two flat metallic strips 5 and 6, pivotally connected by means of a pin 7, and bent into a generally arcuate shape. Hooks 8 and 9 are provided approximately midway between the ends of the strips. Secured to said hooks are the tension springs 10 and 11. Threaded studs 12 and 13 are secured to the inner ends of the springs, one of said studs being provided with a right-hand thread and the other being provided with a left-hand thread. The numeral 14 designates a suitable threaded knurled hand nut which engages the threaded adjacent ends of the studs 12 and 13, as in the conventional form of turnbuckle.

It will be understood that when the hand nut 14 is rotated in one direction the springs are drawn toward the hand nut, thereby increasing the pressure exerted on the extremities of the yoke 3, and that when the nut is rotated in the opposite direction the springs are gradually loosened thereby decreasing the pressure on the extremities of the springs. The springs are proportioned to exert a maximum pressure of approximately 30 pounds when the device is mounted as shown in Figures 1 and 2 on a head of normal size.

The yoke 3 may be advantageously, and preferably is, encased in a housing 15 in order to prevent the hair from becoming entangled in the springs when the device is being adjusted on the head. The housing is made of a flat sheet of suitable material such as plastic, which is bent, as shown in Figure 1, to form a top 16, a bottom 17 and a front wall 18. The edges of the blank are cut to conform to the curvature of the yoke, as shown in Figure 1. A rectangular slot 19 is cut in the top 16 of the housing and an aligned slot 20 is cut in the bottom 17 of the housing. The knurled periphery of the hand nut 14 protrudes through these slots so that it may be adjusted. These slots are elongated to allow for the linear movement of the hand nut, which occurs during its adjustment. Compare Figures 1 and 8. The housing is secured to the yoke only at the pivot pin 7, and is held against rotation by the projection of the hand nut 14 through the slots 19 and 20. The front wall 18 extends somewhat less than the full length of the shield in order to permit the inward movement of the outer ends of the yoke 3 as shown in Figure 8.

The outer ends of the metallic strips 5 and 6 are provided with the forwardly projecting flat portions 21 and 22. To these flat portions are welded or otherwise suitably secured the tubular bearings 23 and 24. In these bearings are rotatably mounted the rods 30 and 31 respectively. The rods may be kept from axial movement by the shoulders 32, 33 and the retaining nuts 34, 35. The outer end 30*a* of the rod 30 is bent at 90°, and the outer end 31*a* of the odd 31 is bent similarly, for a purpose to be hereinafter pointed out.

The two massage units 1 and 2 are detachably secured to the yoke 3 by means of the rods 30 and 31 respectively in the manner to be described. These units are of identical construction, and hence a description of the unit 2 will suffice for both.

The unit 2 is shaped, as shown in Figures 1, 6 and 8, substantially like the combined transmitter-receiver of the French type of telephone instrument, i. e. like an elongated letter C. The central elongated portion, which is designated by the numeral 40, constitutes the handle as in the case of the telephone instrument, and terminates at each end in the inwardly projecting boss 41. The two units are normally mounted on the rods 30 and 31 with their bosses facing each other.

The central handle portion 40 is provided with a slot 42 cut in its outer periphery and extending from about the middle of the rear end thereof. As a result the rear half of the handle portion is substantially channel shaped in cross-section as shown in Figure 10. The vertical leg of the channel is denoted by 43 and the two end portions by 44 and 45. A hole 46 is provided in the lower end portion 45 at the center of the handle 40. Said hole is provided with a bushing 47, which is chamfered at its upper end as shown at 48. The reference numeral 50 denotes a slot which is cut in the upper end portion 44, starting directly above the hole 46 and extending forwardly and outwardly to form an obtuse angle with the groove 42.

As shown in Figure 1, the two massage units 1 and 2 are normally mounted on the rods 30 and 31 with their corresponding bosses 41 fac-

ing each other. The rods 30 and 31 are received within the slot 42 of the corresponding unit 1 or 2, with the bent end 30a or 31a received in the bushing 47 in the hole 46. The chamfer 48 in the upper portion of the bushing provides clearance for the radius of the bend in the rod. The unit is locked against removal from the rod, but the unit may be rotated with the rod 30, 31 in the tubular bearing 23, 24. When the unit is turned through 180° (from the position in dot and dash lines to the one in solid lines in Figure 8) and only then, the slot 50 permits the removal of the bent portion 31a of the rod 31 from the bushing 47 so that the unit may be disconnected from the rod.

It is thought to be clear from the foregoing description that to attach the unit 2 to the rod 31, the unit 2 is held in the position shown in solid lines in Figure 8, the lower portion of the rod 31 is inserted in the slot 50, the bent portion 31a is inserted into the bushing 47, and the unit is rotated about the portion 31a to the dotted position so that the rod 31 is received in the slot 42. As long as the unit 2 is held in the position shown in dot and dash lines in Figure 8, the unit is locked against removal from the rod, but it is free for rotation with the rod in the bearing 24 and also rotatable in the bushing 47 in all positions intermediate the two positions in Figure 8.

It will be noted from an inspection of Figure 1 that the slot 50 in unit 2 is on the top side of the unit whereas in unit 1, the slot 50 is on the bottom side. This is due to the fact that the units are of identical construction and are arranged on the rods 30 and 31 so that the massage pads face each other. If considered desirable, the units may be made so that they are mirror images or counterparts of each other, in which case the slot 50 in both units will be on the same side.

The unit 2 is adapted to carry two spaced massage pads, each one of which is denoted by the reference numerals 51, in such manner that they may readily be adjusted in reference to the unit as well as to its mate. The pads are of identical construction, and hence only one need be described. Before doing so, it is to be noted that the inwardly projecting boss 41 terminates in a rectangular block 52. The reference numerals 53 denote a vertical slot which is formed in each outer end of the units, extending through the bosses 41 and the terminal blocks 52. Looking from either end of the unit 2 (see Figure 5, and also Figure 3), it will be seen that the slot has a symmetrically curved upper portion 54, a restricted intermediate portion 55, and a relatively wide lower portion 56. The portions 54 and 55 are joined by a smooth curved surface 57. The vertical walls or sides of the lower portion 56 of the slot are denoted by 58 and 59. In each of these walls or sides are cut or formed a plurality of teeth 60 for a purpose which will hereinafter appear.

The massage pad 51 has for its body portion a shallow cup-like member 61 of an elastic resilient material such as rubber. Formed integrally with the upper convex surface and projecting upwardly therefrom is an elastic finger or stem 62, which terminates in a ball 63. Resting on the upper convex surface of the cup-like member 61 is a cylindrical apertured block 64, which will hereinafter be referred to as a "positioning block."

The positioning block 64 (see Figure 7) is provided in its center wtih a rectangular aperture 65, through which is adapted to pass the elastic finger or stem 62. The reference numerals 66 and 67 denote two projections on the upper surface of the block; one on each long side of the aperture. A number of teeth 68 is formed on the sides of the projections away from the apertures. These teeth are proportioned so as to cooperate with the teeth 60 previously described.

The cup-shaped element 61 is secured to the positioning block 64 in the manner shown in Figures 3, 4 and 5. The positioning block rests on the convex side of the cup-shaped element 61, the finger or stem 62 passing through the aperture 65 in the block. The cup-shaped element is shown as having two covers, an inner one 69 detachably secured by means of an elastic band 70, and an outer one 71 secured by means of an elastic band 72. Both covers may be of fabric, but the outer one is preferably of an inexpensive readily disposable material such as paper or gauze, for sanitary reasons. One or both covers may be of a soft material such as velvet, velveteen, mohair, plush, or other fabric having a pile. This type of material is preferred for the reason that when applied under pressure and rubbed against the scalp for several minutes, it serves to produce a maximum gripping action and minimum irritation. As shown in Figures 3 and 5, the elastic band 72 secures the outer margins of the outer cover 71 about the circumference of the positioning block 64.

The manner in which each massage pad is adjustably secured to one of the massage units is shown in Figure 6. As shown in said figure, the massage unit 1 or 2 is held in one hand by means of the handle portion 40, and the pad 51 is held by the fingers of the other hand. The ball 63 on the elastic resilient finger 62 is inserted in the groove 53 so that it rests on the curved lower surface 57 of the upper portion 54 thereof, and then the finger 62 is stretched and drawn into the communicating portion 55 of the groove, bringing it into the position illustrated. The tension on the finger 62 is then relieved so that the pad is drawn up against the terminal block 52 of the boss 41 with the teeth 67 of the positioning block 64 in engagement with the teeth 60 in the terminal block 52 (see the position in dotted lines). The pads 51 may be readily adjusted inwardly or outwardly with respect to the handle of the massage units by stretching the finger 62 and moving the pad the desired amount in the desired direction. The tension in the finger 62 keeps the pads locked in adjusted position.

It is important to noted that the bosses 41 on the ends of the handle portion 40 are not parallel but are in converging relation to each other. Hence the pads are in angular relation to each other, conforming generally to the average human skull so as to produce a close fit. The adjustability of the pads and the inherent flexibility of the body portion 61 of the pads take care of different head sizes and any irregularities of shapes. As has been stated, the springs in the yoke 3 are proportioned to exert a maximum pressure of about 30 pounds when the device is mounted on a head of normal size as shown in Figures 1 and 2, and that by rotating the hand nut 14 the pressure may be varied.

It is believed that the manner of using the device for its intended purpose can be readily understood from the foregoing description of its structure. However, a brief explanation will be given as to the presently preferred manner of use.

The device is positioned on the head of a patient as shown in Figures 1 and 2, the desired degree of pressure being applied by means of the hand nut 14. The operator grips the handle 42 of a unit in each hand, and proceeds to massage the scalp by pushing and pulling on the two units so that the scalp is not merely moved but is actually stretched. To cover the entire scalp, the manipulation is performed first by means of relatively slow full strokes horizontal to the skin surface in one direction, and then in the opposite direction. The two units are then moved up and down with slow full strokes to elevate and lower the scalp, and finally the two units are manipulated with a rotational movement first clockwise and then counterclock-wise. The device, it will be understood, can be manipulated over practically the entire head, and because of the manner of connection of the massage units to the yoke, the massage units remain in continuous contact with the contour of the skull.

At various times during the manipulation, the relationship of the massage units to the skull may be changed. In the drawings, the massage units are shown as being positioned at the sides of the skull on the same level. The units may be positioned in other relationships. For instance, the two units may be positioned at different levels of the skull either at the sides or at the front and rear thereof.

Referring now to the embodiment shown in Figures 13, 14 and 15, it will be seen that said device consists essentially of a yoke or spring frame 101, and the two massage units 102 and 103. The yoke or spring frame consists of a strip of flat spring steel 104 in the form of an inverted U, having the normally horizontal middle portion 105 and the two downwardly projecting legs 106 and 107 substantially at right angles to said middle portion 105. Secured to the upper surface of the horizontal portion 105 by means of two machine screws 108 is a strip 109 of steel or other suitable material to reenforce the horizontal portion and to render it rigid. The screws 108 pass through holes in the strips 104 and 109 and are received in the threaded holes in blocks 110. The reenforcing strip is preferably slightly shorter than the horizontal portion 105, the screws 108 secure the ends of the strip 109 to the horizontal portion, and the blocks 110 are spaced a short distance inwardly of the vertical legs 106, 107. Each of said legs is provided near its juncture with the horizontal portion 105 with a screw-threaded stud 111, the outer end of which is provided with a knurled hand nut 112 and the inner end of which bears against one of the blocks 110. A suitable aperture is provided in each of the legs 106, 107 to receive the studs 111. It will be understood that the studs 111 and the hand nuts 112 constitute means to separately change the angles between the legs 106, 107 and the horizontal portion 105 of the U-shaped element 101, thereby separately adjusting the pressure of the massage units against the skull to be massaged. The reference numerals 113 denote short flat metal strips to reenforce the legs 106, 107 in the area of the studs and to distribute the pressure caused by tightening the nuts 112. The strips 113 are each provided with an aperture to receive the stud 111.

The lower end of each of the vertical legs 106, 107 is provided with means to detachably secure thereto one of the massage units 102, 103. Referring to Figure 15, it will be seen that said means consists of a tube 114 secured to the lower end of the leg, and a pin 115, secured in said tube and projecting to one thereof. In Figure 15, the tube 114 is shown as being secured to the right hand side of the lower end of the leg 107 and the pin 115 is shown as projecting to the left. It will be understood that in the case of the leg 106, the tube 114 is secured to the left hand side of the lower end of the leg and the pin 115 projects to the right.

Each of the massage units 102, 103 consists essentially of a flat strip 120 of metal bent into arcuate form, a handle 121 secured to the middle of said strip on the outside convex surface thereof, and a massage pad 122 detachably and adjustably secured to each end of said arcuate strip. The strip 120 may be either of rigid or flexible material, the flexible material having the advantage that it can be readily bent to fit the skull to be massaged. One of the massage units is right-handed and the other is left-handed, but otherwise they are identical. As shown in Figure 15, the arcuate strip 120 is provided at the middle just above the point of attachment to the handle 121 with a short horizontal tube 123 adapted to receive the pin 115 previously referred to, thereby securing the massage unit 103 to the leg 107. The other massage unit 102 is secured to the leg 106 in a similar manner, the only difference being that the tube 123 on said unit is at the right instead of the left. The pin 115 may be locked in place by means of a pivotally mounted short strip of metal 124. A nut 125 constitutes means to tighten the pivotal connection so as to secure the strip 124 in locking position.

The massage pads 122 are of identical construction, the detailed construction being shown in the cross-sectional part of Figure 14. Each pad has for its body portion a shallow cup-like member 126 of an elastic resilient material such as rubber, which is supported and reenforced by a metal backing element 127. The backing element is secured to the body portion of the pad by means of a long screw 128 which passes through aligned apertures in both the body member and the backing element, and a nut 129. The screw 128 extends beyond the nut 129 and is adapted to receive a knurled nut 130. The pad has a permanent cover 131, which may be of elastic or padded material, and an outer cover 132 of inexpensive, readily disposable material such as paper, gauze, etc.

The arcuate member 120 is provided with two longitudinal slots 133, one on each side of the handle 121, to provide means for detachably and adjustably securing the pads thereto. The pads are secured to said member by passing the ends of the screws 128 through the slots 133, positioning the pads in the desired relationship, and then securing the pads to said member by placing the knurled nuts 130 on the screws and tightening said nuts. A washer 134 may be interposed between the arcuate member and the knurled nut. The portion of the screw 128 beyond the nut 129 may advantageously be rectangular in cross-section so as to fit in the slot 133. An aperture 135 is shown as being provided in the arcuate member at about the middle thereof for a purpose which will be later pointed out.

The second embodiment of the invention may be used in substantially the same manner as explained for the first embodiment. In the case of both embodiments, one or both massage units may be removed from the connecting yoke and used separately or simultaneously to massage the

scalp. In the case of the second embodiment, a single massage pad may be secured to the middle of one of the arcuate members **120** by means of the aperture **135**, the long screw **128** and the nuts **129** and **130**, and manipulated over the scalp by means of the handle **121**.

It is to be noted that a very important function of the device is the elevating and lifting of the scalp by sliding the skin over the skull curvatures. When this function is performed, the scalp may be kept in elevated or lifted position without further manipulation for any desired duration of time. Such elevation increases the stretching action and considerably enhances the circulation to the elevated areas.

Another very important function is the production of flushing of the scalp by deliberately producing slipping or rubbing of the massage elements over the scalp, thereby squeezing and forcing blood in the direction of movement toward the respective areas.

Still another function is to produce a brushing of the scalp, thereby pulling on the hairs and their roots and resulting in the stimulation of circulation, nourishment and hair growth.

It is important to note that, except when the pads are intentionally permitted to slip or slide over the scalp, as when it is desired to produce a flushing or brushing action, the manipulation must be with sufficient gripping pressure so that the skin, instead of being merely moved from one place to another, is stretched firmly between two areas. The stretch must be adequate to overcome the cohesion or internal resistance of the elastic fibrous and muscular tissue. The manipulation must be vigorous but at the same time not so forceful as to injure the skin or its delicate appendages.

Because of the manner in which the two massage units are detachably secured to the yoke, they may be readily removed as previously described and used separately and independently for producing any one or more of the above described manipulations.

It should be understood that the drawing and specification illustrate merely preferred embodiments of the invention and that they are subject to considerable variation and modification without a departure from the spirit and scope of the claims which follow. Hence, the disclosure is to be considered as illustrative and exemplary of the invention, and not in any wise as restrictive thereof.

I claim:

1. As an element of a scalp manipulating device, a yoke having an intermediate portion and two legs, said legs being substantially at right angles to said intermediate portion, two blocks, each secured to said intermediate portion a short distance inwardly of said legs, and a screw-threaded stud extending through each leg near its juncture with said intermediate portion and contacting one of said blocks, said blocks and studs constituting means to adjust the angle between the intermediate portion and said legs and thereby adjusting the pressure of the device against the skull to which it is applied.

2. A scalp manipulating device comprising a yoke having an intermediate portion and legs, means to retain said legs in adjusted position towards and away from each other, an arcuate member secured intermediate its ends to each of the free ends of said legs, massage pads mounted on each of said arcuate members, and means for adjusting the position of said massage pads on said arcuate members, said last-named means including an elongated slot in each of said arcuate members, a threaded stem carried by each of said massage pads and extending through each of said slots and a nut received on each of said stems.

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