March 26, 1957 W. N. MOXLEY 2,786,465

MASSAGE PILLOW

Filed July 21, 1955

FIG. 1.

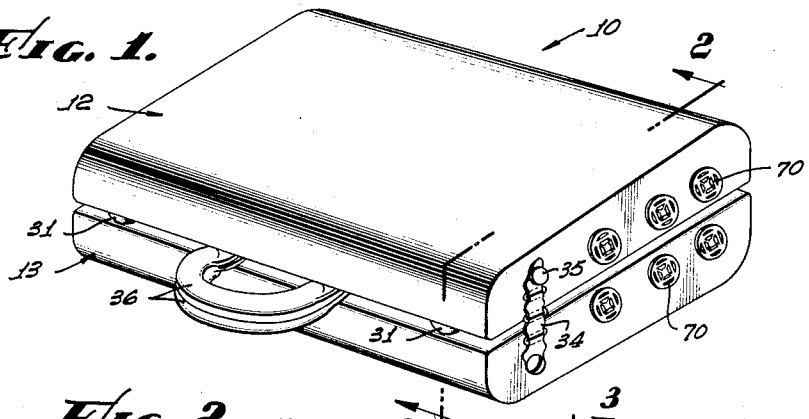


FIG. 2.

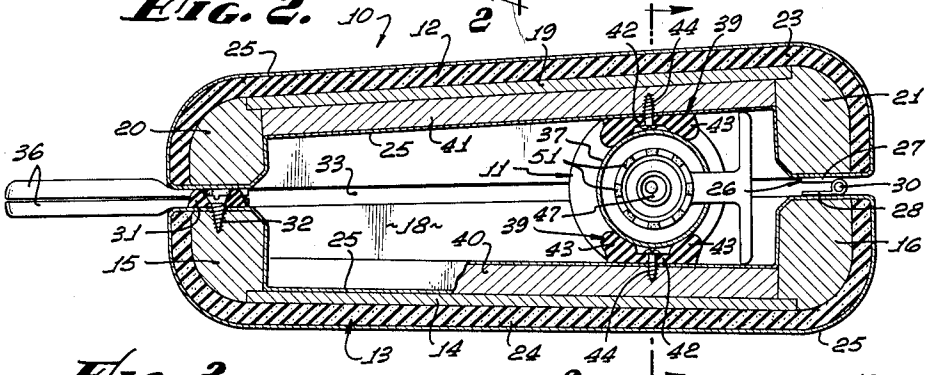


FIG. 3.

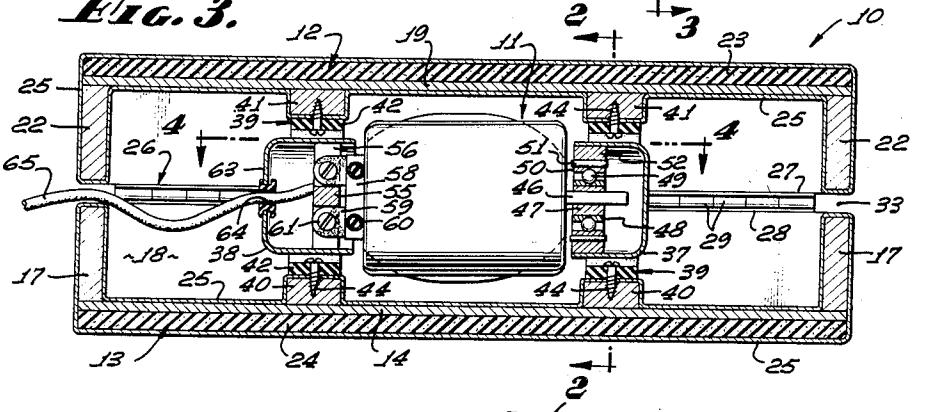
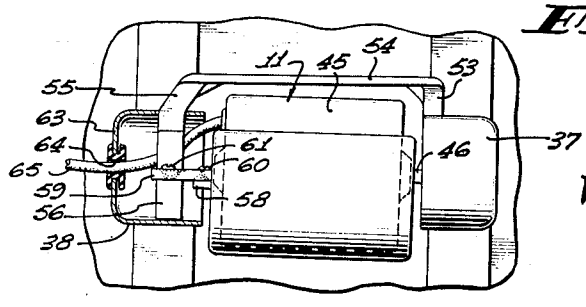


FIG. 4.



INVENTOR.
WILLIAM N. MOXLEY
BY
Bernard Kriegel
ATTORNEY.

United States Patent Office 2,786,465 Patented Mar. 26, 1957

2,786,465

MASSAGE PILLOW

William N. Moxley, Los Angeles, Calif.

Application July 21, 1955, Serial No. 523,486

11 Claims. (Cl. 128—34)

The present invention relates to apparatus for providing a massaging action to areas of the human body to which it is applied.

An object of the invention is to provide a massage pillow containing a portable massage action producing unit, which is clamped within the pillow in a particular position, resulting in the transmission of the massaging action in a substantially uniform and most effective manner throughout the pillow.

A further object of the invention is to provide a massage pillow containing a motor driven massaging unit, in which the motor is maintained in a comparatively cool state while operating within the pillow.

An additional object of the invention is to provide an improved clamp device for supporting a massage vibratory unit within a massage pillow, the clamp device being more effective in transmitting massaging action from the unit to the pillow.

This invention possesses many other advantages, and has other objects which may be made more clearly apparent from a consideration of a form in which it may be embodied. This form is shown in the drawings accompanying and forming part of the present specification. It will now be described in detail, for the purpose of illustrating the general principles of the invention; but it is to be understood that such detailed description is not to be taken in a limiting sense, since the scope of the invention is best defined by the appended claims.

Referring to the drawings:

Figure 1 is an isometric projection of a massage pillow in closed position;

Fig. 2 is a cross-section taken generally along the lines 2—2 on Figs. 1 and 3;

Fig. 3 is a cross-section taken along the line 3—3 on Fig. 2;

Fig. 4 is a top plan and partially sectional view, as seen generally along the line 4—4 on Fig. 3.

As disclosed in the drawings, a massage pillow 10 is provided that contains a portable massage unit 11 clamped therein when the pillow is in closed position. Operation of the massage unit 11 produces vibratory or oscillatory motions that are transmitted to the pillow, from which the motions are imparted to those areas of the person's body in contact with the pillow.

As specifically disclosed, the pillow 10 includes an upper section 12 and a lower section 13 which are substantial duplicates of one another, being arranged in opposed relation. Thus, the lower section 13 includes a frame that may be made of wood, or corresponding relatively rigid material. This frame includes a bottom member 14 suitably secured to front, rear, and side members 15, 16, 17 extending upwardly therefrom, to provide a hollow space 18 within the lower section. Similarly, the upper section 12 includes a frame made of wood, or corresponding rigid material, consisting of a top member or panel 19 suitably secured to depending front, rear, and side members 20, 21, 22.

A layer 23 of sponge rubber, or similar pliant, elastic material, is provided on the exterior of the front, top and rear members 20, 19, 21 of the upper section 12, and another layer 24 of sponge rubber, or similar pliant, elastic material, is provided on the exterior of the front, bottom and rear members 15, 14, 16 of the lower section 13. These rubber layers 23, 24, as well as the interior surfaces of the upper and lower sections, may be encased by a suitable covering or lining 25 that may be made of a plastic sheet material, the covering or lining being adhered to the rubber layers 23, 23 and to the frame itself in any known manner.

The upper and lower sections 12, 13 are pivotally secured to each other, to enable them to be swung between open and closed positions. A piano type hinge 26 is disposed along and between the rear members 21, 16 of the upper and lower sections. Thus, the hinge 26 extends along substantially the entire length of the rear members 21, 16, the upper plate 27 of the hinge being attached to the under side of the rear member 21 of the upper section, the lower plate 28 of the hinge being secured to the upper end of the rear member 16 of the lower section. When the pillow is in closed position, such as disclosed in the drawings, the upper and lower plates 27, 28 are in opposed relation, their hinge knuckles 29 interleaving with each other. A suitable hinge wire or hinge pin 30 passes through all of the hinge knuckles 29 to pivotally secure the plates 27, 28 together.

When the upper section 12 is swung down toward the lower section 13, or to a closed position, the lower surface of the front upper member 20 will engage a plurality, such as a pair, of longitudinally spaced rubber bumpers or buttons 31 suitably secured to the front member 15 of the lower section 13, as by means of screws 32 passing through the bumpers and threaded into the front member 15. With the pillow in closed position and with the upper front member 20 engaging the rubber bumpers 31, a substantial gap or space 33 remains between the upper and lower sections 12, 13 completely around the pillow, to permit the passage of air between its interior and exterior.

The pillow may be releasably secured in the closed position by a pair of straps 34 on its opposite sides. One end of each strap 34 may be secured to the forward portion of the lower side 17, the other or upper end being constituted as a snap fastener element 35 adapted to be snapped over a companion fastener element (not shown) attached to the forward side portion 22 of the upper section 12. When the snap fasteners 35 are coengaged, the pillow is held in the closed position shown in the drawings. The release of the snap fastener elements permits the upper section 12 to be swung about the axis of the hinge pin 30 to an open position.

To facilitate carrying of the pillow and the movement of the sections 12, 13 between open and closed positions, a pair of handles 36 may be secured to the front members 20, 15 of the upper and lower sections, these handles extending in a forward direction from the sections 12, 13.

The portable massage unit 11 is adapted to be clamped within the pillow, and preferably in a particular position where it is most effective in transmitting massaging action from the unit to the pillow iteslf. The opposed ends of the massage unit 11, the outer portions of which may be constituted by generally cylindrical cup-shaped members 37, 38, are adapted to be clamped between the upper and lower sections of the pillow, with the rotational axis of the massage unit substantially parallel to the pivotal axis of the hinge 30. The massage unit may be clamped between two pairs of opposed longitudinally spaced rubber pillow blocks 39 secured to the upper and lower sections 12, 13. The lower section 13 may have a pair of longitudinally spaced supporting bars 40 secured to and extending upwardly from the bottom member 14 and substantial-

ly at right angles to the pivot axis of the hinge 26. Similarly, the upper section 12 may have a pair of longitudinally spaced supporting bars 41 suitably secured to the top member 19 and depending therefrom, these supporting bars also being substantially perpendicular to the pivot axis of the hinge 26, and in opposed relation to, and alignment with, the bottom supporting bars 40. The plastic or similar lining 25 may also extend over the inner surfaces of the supporting bars 40, 41.

A rubber pillow block 39 is secured to each of the supporting bars, one pair of pillow blocks being attached in opposition to each other to the supporting bars 40, 41 at one side of the massage unit 11, whereas another pair of pillow blocks 39 is secured in opposed relation to each other to the supporting bars 40, 41 at the other side of the massage unit. Each pillow block 39 includes a central web portion 42 bearing upon a supporting bar, from which spaced flanges 43 project in an inward direction. The pillow block is secured to a supporting screw 44 passing through the central web 42 and threaded to a supporting bar. It is evident that one pair of rubber pillow blocks 39 is disposed in opposed relation at one side of the massage unit 11 when the pillow is closed, and that another pair of rubber pillow blocks is then disposed in opposed relation at the other side of the massage unit. The flanges 43 of each opposed pair of the pillow blocks are adapted to engage and be clamped against a cup-shaped massage unit cover member 37 or 38, through which the massage or vibratory action of the massage unit is transmitted to the rubber pillow blocks 39.

The massage unit 11 is clamped between the pillow blocks 39 with its rotational axis substantially parallel to the hinge pin axis. The unit includes an electric motor 45, of any suitable type, having an armature shaft 46 extending from one side thereof. This armature shaft passes through an eccentric element 47, which is suitably keyed, or otherwise secured, to the armature shaft. The eccentric element 47 has an inner race 48 mounted thereon that receives a series of ball bearing elements 49 engaging an outer race 50, which is secured to a plurality of circumferentially spaced rubber buttons or segments 51, which are, in turn, secured within a bearing support 52, to which the cup-shaped member 37 is suitably secured, as through use of a plurality of screws (not shown).

The bearing support 52 is integral with, or is otherwise suitably attached, to an arm 53 extending laterally from the axis of the massage unit, the outer end of this arm being integral with or suitably secured to a shoe plate 54, which extends to one side of and generally lengthwise of the electric motor 45. The other end of the shoe plate 54 is integral with, or otherwise suitably secured to, another arm 55 extending inwardly toward the axis of the massage unit, the inner portion of this arm being integral with a cross-piece or bar 56, to which the end of the electric housing is attached through the agency of a flexible connection or coupling. Thus, the end of the motor frame may be provided with a transverse flange 58 to which a pair of fiber or flexible bars 59 are suitably secured, as by means of screws or bolts 60. These flexible bars 59 extend generally parallel to the axis of the massage unit, their other ends being secured, as by means of screws 61, to the cross-piece that is integral with the arm 55.

The cup-shaped cover member 38 encloses the cross-piece 56, being appropriately slotted to allow the arm 55 to pass outwardly therethrough. This cup-shaped cover member 38, which is adapted to be clamped between the pair of opposed pillow blocks 39, is suitably secured to the cross-piece 56 by screws or the like. Its end wall 63 may have a central opening 64 therethrough, through which an electric line 65, connected to the electric motor 45 may pass.

The rubber pillow blocks 39 on opposite sides of a

cover member are spaced from each other to such an extent, with the pillow in closed position and with the straps 34 locked, as to impart a clamping action on the cup-shaped member of the massage unit. That is to say, when the massage unit 11 is placed within the pillow with its cup-shaped members 37, 38 on the lower set of blocks 39, and the upper section 12 pivoted to the closed position, the upper set of pillow blocks 39 will engage the cup-shaped members just before the pillow is fully closed, which will require the pillow block flanges 43 to be compressed or deformed to some extent into clamping engagement with the cup-shaped members before the pillow can be fully closed and the snap fasteners 35 on the ends of the straps 34 secured in place. When this occurs, the front portion 20 of the upper section 12 will also be exerting a compressive force upon the rubber bumper members 31.

In the operation of the device, the massage unit 11 is inserted in place with its cup members 37, 38 seated within the lower pillow blocks 39. The electric line 65 extends to the exterior of the pillow, after which the top section 12 is swung down to closed position, the upper rubber pillow blocks 39 engaging the cup-shaped members, exerting a clamping action on the latter when the snap fasteners 35 have been secured in place. Preferably, the massage unit 11 is disposed within the pillow with the shoe 54 facing toward the hinge 26, which will insure the proper location of the massage unit in the pillow.

The electric line 65 is plugged into a suitable electric outlet and the electric motor 45 started. In view of the eccentric element 47 attached to the armature shaft 46, the rotation of the electric motor will produce a vibratory or oscillatory action, that will be transmitted at one end of the unit through the bearing structure 48 to 52 and cup-shaped member 37 to the upper and lower pillow blocks 39. The flexible connection or coupling 59 between the rear end of the electric motor 45 and the other arm support 56 attached to the shoe will permit the proper gyratory action of the electric motor during its rotation, the gyratory or vibratory action also being imparted through the flexible coupling 59 to the other cup-shaped member 38, and from the latter to the opposed pillow blocks 39 clamped thereagainst. The massaging or vibratory action will be transmitted through the pillow blocks 39 to the cross bars 40, 41, and from the latter, through the upper and lower sections 12, 13 of the pillow frame to the sponge rubber layers 23, 24, which are applied against the portion or portions of the person's body to be massaged, or against the clothing, or any other intervening substances.

During the operation of the device, cooling air for the motor 45 can enter through the space 33 that exists between the upper and lower sections 12, 13, the air passing from one side of the unit, through the space 33, around and through the motor 45, and exhausting through the space 33 at the opposite side. Additional air cooling action can be secured by providing air passages or louvers 70 in the sides 22, 17 of the upper and lower section, and on both sides of the apparatus. These air passages 70 are disposed toward the rear or hinge side of the pillow, where the massage unit 11 is located, providing a direct flow of air from the exterior of the pillow 10, through the air passages or grills 70, provided at one side in the members 22, 17, to the interior of the apparatus, the air being capable of exhausting through the air passages or grills 70 on the opposite side walls 22, 17 of the apparatus.

It is found that the pillow blocks 39, each of which includes the central web 42 and the spaced flanges 43, have a long life and are very effective in transmitting the massaging action from the gyratory massaging unit 11 through the frame and the sponge rubber layers 23, 24 to the person's body.

To transmit the massaging action from the unit 11 to the person's body most effectively, the massage unit is

mounted with its axis substantially parallel to the pivot axis of the hinge pin **30**, and is also disposed a critical distance from the axis of the hinge with respect to the distance between the hinge axis and the location of the rubber bumpers **31** at the front portion of the apparatus. If the massage unit **11** were clamped between the upper and lower sections **12, 13** too close to the axis of the hinge pin **30**, then the major portion of the massaging action would be felt at the rear or hinge end of the pillow, a relatively small portion being transmitted to the forward portion of the pillow. Similarly, if the massage unit were clamped between the pillow blocks **39** of the upper and lower sections with its axis at too great a distance from the hinge pin **30**, then the greater proportion of the massaging action would be transmitted to the forward part of the pillow, and a substantially reduced portion to the rear part of the pillow.

It has been found that substantially uniform transmission of the massaging action or vibrations of the massage unit to the pillow is secured by clamping the unit **11** within the pillow with the axis of the massage unit spaced away from the pivotal axis of the hinge **26** about 30 percent of the distance between the hinge axis and the rubber bumpers **31**. Variations from the 30 percent value that has just been specified can be made within reasonable limits and substantially uniform transmission of the massaging effect from the massage unit to the outer portions of the pillow still obtained. It has been found that the location of the axis of the massage unit about 5 percent closer to the hinge axis results in a loss of uniform distribution of the massaging action of about 10 percent. It is also found that the disposition of the axis of the massage unit about 5 percent further away from the hinge axis than the 30 percent value given above also results in a loss of uniform distribution of the massage action throughout the pillow of about 10 percent. The axis of the massage unit **11** can be disposed from about 25 percent to 35 percent of the distance between the hinge axis and the front rubber bumpers **31**, and still secure substantially uniform transmission of the massage action throughout the massage pillow. It is preferred, however, to space the axis of the massage unit about 30 percent of the distance between the hinge pin axis and the front rubber bumpers, since that is the most effective location for clamping the unit within the pillow, with its axis substantially parallel to the axis of the hinge **26**. Distances less than the 25 percent value given above and more than the 35 percent given above from the hinge axis result in a loss of too great an amount in the effective distribution of the massaging action throughout the pillow, and should not be used.

In connection with the hinge construction, the use of the piano hinge **26** extending substantially along the entire length of the rear members **16, 21** produces a much more effective and efficient transmission of the massaging action from the massage unit **11** to the pillow member itself, inasmuch as the vibratory effect is transmitted through the entire length of the hinge **26**, and along substantially the entire length of the rear members **21, 16**, rather than merely being transmitted through widely separated and concentrated points, as would occur if only a pair of separated hinges were employed, which would normally be located toward the side portions of the pillow.

It is, therefore, apparent, from the foregoing description and the drawings, that a massage pillow has been provided in which the massaging action is transmitted substantially uniformly throughout the pillow. The particular rubber pillow blocks employed enhance the efficiency and effectiveness of the transmission of the vibratory or massaging action to the pillow structure itself; whereas the provision of the air passages **70** in the side members, particularly toward the hinge portion of the pillow, insures the maintenance of the massage unit **11** in a comparatively cool running condition, despite its continuous use over extended periods.

The inventor claims:

1. In a massage pillow: an upper section; a lower section; means pivotally securing rear portions of said sections together to permit relative movement of said sections between open and closed positions; means at the front portions of said sections adapted to abut when said sections are in closed relation; rotatable vibration producing means within and secured between said sections, the axis of rotation of said vibration producing means being substantially parallel to the pivotal axis of said securing means; said rotational axis being spaced from said pivotal axis from 25 percent to 35 percent of the distance between said pivotal axis and said abutting means.

2. In a massage pillow: an upper section; a lower section; means pivotally securing rear portions of said sections together to permit relative movement of said sections between open and closed positions; means at the front portions of said sections adapted to abut when said sections are in closed relation; rotatable vibration producing means within and secured between said sections, the axis of rotation of said vibration producing means being substantially parallel to the pivotal axis of said securing means; said rotational axis being spaced from said pivotal axis about 30 percent of the distance between said pivotal axis and said abutting means.

3. In a massage pillow: an upper section; a lower section; a piano hinge pivotally securing rear portions of said sections together to permit relative swinging of said sections between open and closed positions; pliant, elastic means at the front portions of said sections adapted to be compressed when said sections are in closed position; pliant, elastic supporting members within and secured to said sections in opposed relation; rotatable vibration producing means adapted to be clamped between said supporting members with the axis of said vibration producing means substantially parallel to the axis of said hinge; said rotational axis being spaced from said hinge axis from 25 percent to 35 percent of the distance between said hinge axis and said pliant, elastic means.

4. In a massage pillow: an upper section; a lower section; a piano hinge pivotally securing rear portions of said sections together to permit relative swinging of said sections between open and closed positions; pliant, elastic means at the front portions of said sections adapted to be compressed when said sections are in closed position; pliant, elastic supporting members within and secured to said sections in opposed relation; rotatable vibration producing means adapted to be clamped between said supporting members with the axis of said vibration producing means substantially parallel to the axis of said hinge; said rotational axis being spaced from said hinge axis about 30 percent of the distance between said hinge axis and said pliant, elastic means.

5. In a massage pillow: an upper section; a lower section; pliant, elastic layers of material on the outer portions of said sections; a piano hinge pivotally securing rear portions of said sections together to permit relative swinging of said sections between open and closed positions; pliant, elastic means at the front portions of said sections adapted to be compressed when said sections are in closed position; pliant, elastic supporting members within and secured to said sections in opposed relation; rotatable vibration producing means adapted to be clamped between said supporting members with the axis of said vibration producing means substantially parallel to the axis of said hinge; said rotational axis being spaced from said hinge axis from 25 percent to 35 percent of the distance between said hinge axis and said pliant, elastic means.

6. In a massage pillow: an upper section; a lower section; pliant, elastic layers of material on the outer portions of said sections; a piano hinge pivotally securing

rear portions of said sections together to permit relative swinging of said sections between open and closed positions; pliant, elastic means at the front portions of said sections adapted to be compressed when said sections are in closed position; spaced pliant, elastic pillow blocks secured to said lower section; spaced pliant, elastic pillow blocks secured to said upper section in opposed relation to said pillow blocks of said lower section when said sections are closed against one another; rotational vibration producing means adapted to be clamped between said opposed pillow blocks with its axis substantially parallel to the axis of said hinge; said rotational axis being spaced from said hinge axis 25 percent to 35 percent of the distance between said hinge axis and said pliant, elastic means.

7. In a massage pillow: an upper section; a lower section; pliant, elastic layers of material on the outer portions of said sections; a piano hinge pivotally securing rear portions of said sections together to permit relative swinging of said sections between open and closed positions; pliant, elastic means at the front portions of said sections adapted to be compressed when said sections are in closed position; spaced pliant, elastic pillow blocks secured to said lower section; spaced pliant, elastic pillow blocks secured to said upper section in opposed relation to said pillow blocks of said lower section when said sections are closed against one another; rotational vibration producing means adapted to be clamped between said opposed pillow blocks with its axis substantially parallel to the axis of said hinge; each pillow block including a central web portion and spaced flanges integral with said web portion and engaging said vibration producing means; said rotational axis being spaced from said hinge axis from 25 percent to 35 percent of the distance between said hinge axis and said pliant, elastic means.

8. In a massage pillow: an upper section; a lower section; pliant, elastic layers of material on the outer portions of said sections; a piano hinge pivotally securing rear portions of said sections together to permit relative swinging of said sections between open and closed positions; pliant, elastic means at the front portions of said sections adapted to be compressed when said sections are in closed position; spaced pliant, elastic pillow blocks secured to said lower section; spaced pliant, elastic pillows blocks secured to said upper section in opposed relation to said pillow blocks of said lower section when said sections are closed against one another; rotational vibration producing means adapted to be clamped between said opposed pillow blocks with its axis substantially parallel to the axis of said hinge; each pillow block including a central web portion and spaced flanges integral with said web portion and engaging said vibration producing means.

9. In a massage pillow: an upper section; a lower section; means pivotally securing rear portions of said sections together to permit relative movement of said sections between open and closed positions; means at the front portions of said sections adapted to abut when said sections are in closed relation; rotatable vibration producing means within and secured between said sections, the axis of rotation of said vibration producing means being substantially parallel to the pivotal axis of said securing means; said rotational axis being spaced from said pivotal axis from 25 percent to 35 percent of the distance between said pivotal axis and said abutting means; the side portions of said sections having air passages therethrough for the flow of cooling air from the exterior of said sections to said vibration producing means.

10. In a massage pillow: an upper section; a lower section; pliant, elastic layers of material on the outer portions of said sections; a piano hinge pivotally securing rear portions of said sections together to permit relative swinging of said sections between open and closed positions; pliant, elastic means at the front portions of said sections adapted to be compressed when said sections are in closed position; spaced pliant, elastic pillow blocks secured to said lower section; spaced pliant, elastic pillow blocks secured to said upper section in opposed relation to said pillow blocks of said lower section when said sections are closed against one another; rotational vibration producing means adapted to be clamped between said opposed pillow blocks with its axis substantially parallel to the axis of said hinge; the side portions of said sections having air passages therethrough for the flow of cooling air from the exterior of said sections to said vibration producing means.

11. In a massage pillow: an upper section; a lower section; means pivotally securing rear portions of said sections together for relative movement between open and closed positions; means at the front portions of said sections adapted to abut when said sections are in closed relation; rotatable vibration producing means within and secured between said sections, the axis of rotation of said vibration producing means being substantially parallel to the pivotal axis of said securing means; said rotational axis being spaced from said pivotal axis from 25 percent to 35 percent of the distance between said pivotal axis and said abutting means; the side portions of said sections having spaced air passages therethrough spaced along said sections through which cooling air can flow from the exterior of said sections to the interior of said sections for cooling said vibration producing means.

References Cited in the file of this patent

UNITED STATES PATENTS

2,425,655	Tompkins	Aug. 12, 1947
2,539,712	Wettlaufer	Jan. 30, 1951
2,687,717	Murphy	Aug. 31, 1954