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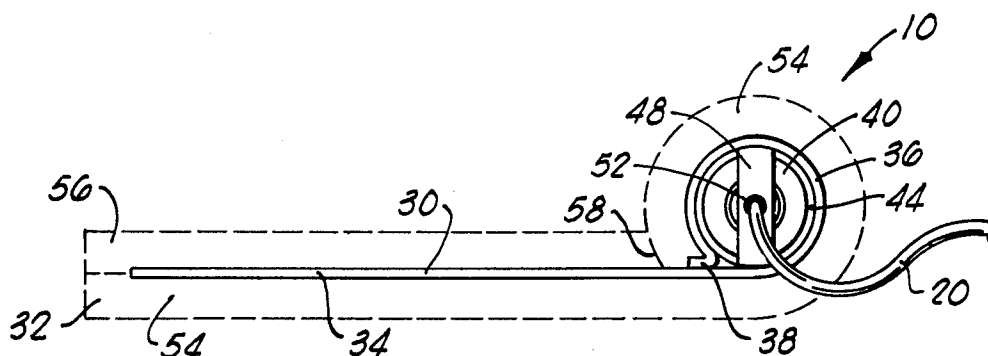
[56] **References Cited**
UNITED STATES PATENTS
 2,800,897 7/1957 Ross 128/33UX
 2,850,009 9/1958 McElwee..... 128/33X
 3,019,785 2/1962 Eiden 128/33
 3,464,405 9/1969 Kallus..... 128/33

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[54] **VIBRATORY MASSAGING DEVICE**
8 Claims, 3 Drawing Figs.

[52] U.S. Cl..... **128/33,**
128/36
 [51] Int. Cl..... **A61h 1/00**
 [50] Field of Search..... **128/24.2,**
33—36

ABSTRACT: Massaging apparatus which is capable of more effectively distributed vibratory motion, the apparatus consisting of a frame constructed of expanded metal and having a vibratory element securely affixed thereto, with a resilient padding overlaying the frame structure and with a decorative outer cover removably disposed thereover.



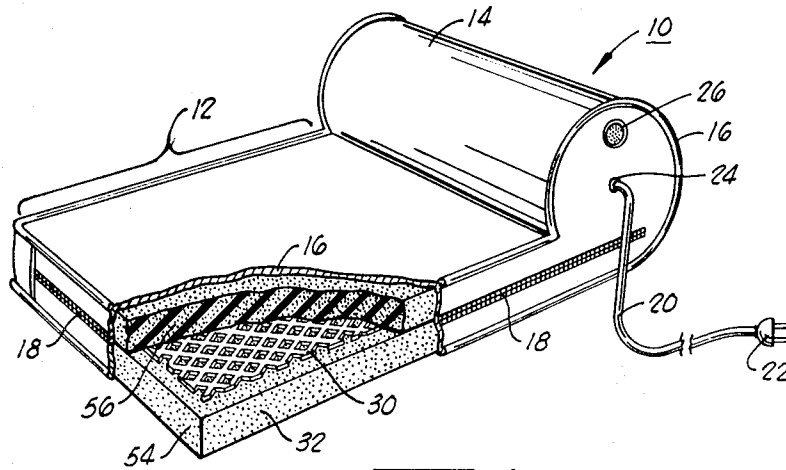


FIG. 1

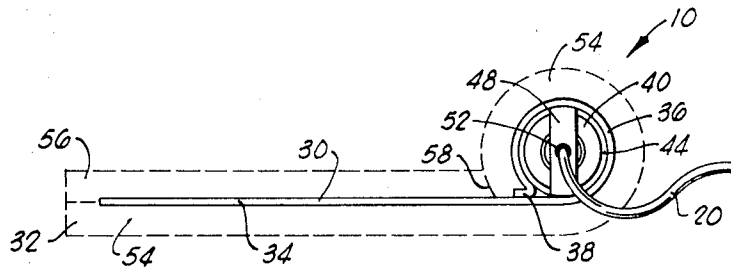


FIG. 2

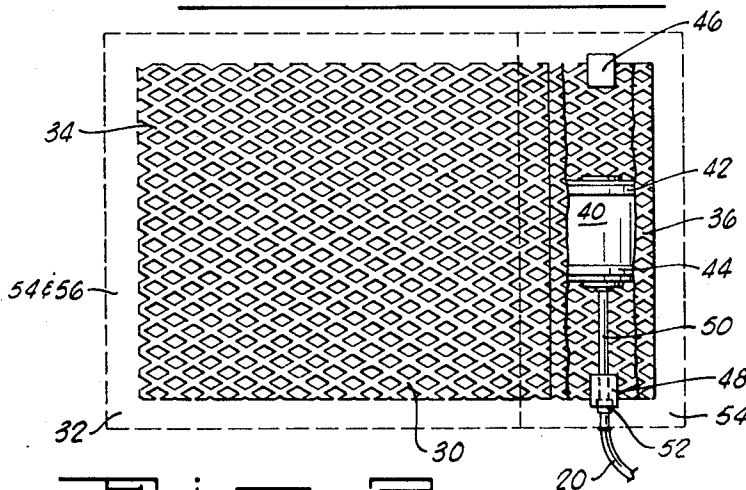


FIG. 3

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VIBRATORY MASSAGING DEVICE

BACKGROUND OF THE INVENTION

1. Field of the Invention

The invention relates generally to therapeutic massage devices and, more particularly, but not by way of limitation, it relates to improved vibratory apparatus constructed upon a main frame formed from expanded metal.

2. Description of the Prior Art

The prior art includes various types of vibratory apparatus which are intended for generating and applying a vibratory motion to various parts of the human body. Such prior art units range all the way from small vibratory motors adaptable to the back of the hand, to larger devices intended for vibrating the entire body or some major portion thereof. It has been common among prior teachings to disregard the type of vibratory action being generated, i.e. frictional rubbing motion, up-and-down thumping motion, etc., and it is only lately that realization has come that smooth oscillatory motion, combining up-and-down and lateral motions, can provide a vastly more beneficial therapeutic effect. It has also been elusive to construct a massaging device capable of even distribution of good massage motion over a desirable expanse. Most vibratory sources behave as point sources in effect, and much vibratory power is lost in attempts at motion distribution.

SUMMARY OF THE INVENTION

The present invention contemplates a vibratory massage device wherein the energy from a vibratory motion source is effectively transmitted throughout a cushioned frame member to enable the vibratory force output over the entire cushion. In a more limited aspect, the invention consists of the use of a frame material having particularly good vibratory motion transmission characteristics, viz. the employ of specific kinds and sizes of expanded metal. A unitary skeletal frame of the vibratory massage device is formed from expanded metal and a vibratory energy source is securely affixed thereto; the entire frame assembly is then covered with a resilient cushioning material and a decorative outer slipcover.

Therefore, it is an object of the present invention to provide a massage device which enables generation and output of a massage motion over a wider expanse.

It is also an object of the invention to provide apparatus which is capable of wide area, in-phase oscillation output of a preferred form of vibratory motion.

Finally, it is an object of the present invention to provide a rugged vibratory unit which distributes massage motion relatively evenly over its entire structure.

Other objects and advantages of the invention will be evident from the following detailed description when read in conjunction with the accompanying drawings which illustrate the invention.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a perspective view of a vibratory massage device constructed in accordance with the invention, with internal parts being shown in cutaway;

FIG. 2 is a side elevation of the frame member of the invention with external cushioning material shown in dashlines; and

FIG. 3 is a top plan view of the frame member of the invention with cushioning parts shown in dashlines.

DETAILED DESCRIPTION OF THE INVENTION

As shown in FIG. 1, a vibratory massage device 10 consists of a flat base portion 12 terminating at one end in a rolled head portion 14. The entire massage device 10 is covered by a form fit cover 16, formed of leatherette or other suitable vinyl covering, and it includes an access zipper 18 extending around two sides of the base portion 12. An electrical cord 20, for a.c. line connection via standard 110 volt plug 22, is led through an access opening 24 in the cover 16, and internal ventilation and heat dissipation is enabled by means of a perforated disc

26 which is securely fastened in the cover 16 on the ends of roller head portion 14.

Internally, the skeletal structure of massage device 10 consists of a frame 30 covered over by a resilient foam material 32. As shown in FIGS. 2 and 3, the frame 30 is rolled to form a flat base frame 34 and a rolled headframe 36. The headframe 36 is formed by coiling frame end 38 around for spot welding to the base frame 34 at a plurality of locations across the point of joinder. The frame 30 is formed from an expanded metal, and empirical results indicate that the well-known diamond pattern expanded metal, approximately 75 percent open, provides best vibration distribution while still affording the necessary structural stiffening. Thus, a diamond pattern expanded metal of approximately 18 gauge steel (expandable to 20 gauge) may be employed to very good advantage. One form of diamond pattern which has been employed to good account is expanded No. 20 gauge diamond pattern having a 1 inch by five-sixteenth inch dimension, the long dimension of the diamond being aligned along the long dimension of base frame 34, i.e. perpendicular to headframe 36. While the actual overall dimension of frame 30 may be varied in accordance with different design exigencies, a prototype model of the invention employs a frame piece measuring 11 3/4 inches by 29 1/2 inches before the frame forming.

A vibrator unit 40 may be a commercially available item, in this particular case the Model 4K990 Oscillation Motor which is commercially available from W. W. Grainger, Inc. of Chicago, Ill. This type of motor is well-known as it generates an oscillation movement by means of eccentric races positioned between end bearings. Also optional, it may be desirable to employ an oscillatory motor which includes a thermal overload device of conventional type. While various vibratory motors ranging from linear thrust oscillation to circular vibration may be employed, it is desirable to employ a motor such as the above-identified type which is effectively an orbital vibration, not wholly vibrating in the plane of frame base 34 or the plane normal thereto.

The motor 40 is secured within headframe 36 in a unique manner. Thus, a pair of rubber loops 42 and 44 are fitted around opposite ends of motor 40 whereupon the whole assembly is positioned in the center interior of headframe 36; thereafter, several expanded metal strands closely adjoining the ends of motor 40 can be depressed inward to provide secure seizure of the motor 40 within headframe 36. A pair of end frames 46 and 48, U-shaped bracket members, are spot welded in secure positioning across the open ends of headframe 36 to provide diametric strengthening. An electrical cord 50 from motor 40 is then led out through a suitable feed-through grommet 52 disposed in end bracket 48 (whereupon it becomes the external electrical wire 20 of FIG. 1).

The cushion material 32 may be formed from any of the various commercially available foam plastic or sponge rubber products. Various considerations as to thickness, damping effect and compatibility with sealing solvents or contact cements must be considered. Thus, one form of cushioning material 32 may be a polydacrofoam which is applied with a suitable contact cement, as selected to be chemically inert when in contact with the polydacrofoam.

It has also been found that a thickness of one and one-quarter inch per application of the polydacrofoam gives advantageous results. Thus, a lower foam pad 54 is secured with contact cement to the underside of base frame 34 as well as up and around the headframe 36 (as shown in FIG. 2). An upper base pad 56 is then secured by contact cement to all overlapping edges of lower base pad 54, as well as to the top surface of base frame 30, and to an abutting juncture 58 adjacent the coiled end of the lower base pad 54. Sufficient contact cement should be used so that all interior surfaces of lower base pad 54 and upper base pad 56 are cemented to respective adjacent surfaces of the expanded metal frame 30. Secure cementing will insure that little or no surface slippage is possible as between the individual elements of massage device 10.

In operation, the oscillatory motor 40 can be energized to set up an orbital vibratory motion which, since motor 40 is tightly secured to headframe 36, will be transmitted to the expanded metal frame 30. The expanded metal frame 30, being partly open such that it strikes an optimal compromise between rigidity and resiliency, actually exhibits resonance characteristics which contribute to acceptance and regeneration of the vibratory input. In effect, the full amplitude vibration is transmitted throughout the entire frame 30, i.e. both the base frame 34 and the headframe 36.

The overall form of massage device 10, i.e. base portion 12 and rolled head portion 14, enables usage of the massage device 10 in any of a great number of positions about the head and body. The device can be employed on any part of the body while laying, sitting erect, sitting with feet up, etc. The device renders a gentle massage which is applied equally over a large area, and it therefore avoids the more severe and localized thumping types of vibratory stimulation as is generally encountered in devices available heretofore.

The foregoing discloses a novel construction technique for forming a vibratory massage device having the capability of more gentle but more thorough massage effects. The device employs unique frame structure which serves to direct the vibration output effect so that it is not localized but is evenly distributed over the expanse of the massage device. In addition, the employ of expanded metal as the skeletal frame of the device teaches a novel construction technique which enables various additional advantages in assembly of the device. Thus, not only is a device constructed which is capable of improved massage effect, but there is also an improvement in construction through simplification of assembly with no decrease in the reliability of structure.

It is also contemplated that some applications of the basic structural technique utilizing the expanded metal core or skeletal frame may benefit from particular contour shaping of the overall device, i.e. a particular exterior shape as suggested for a specific application. It should be noted too that the various materials, fastening techniques, etc. as employed in the present disclosure may be any of various conventional types, accepted rules of selection governing.

Changes may be made in the combination and arrangement of elements as heretofore set forth in the specification and shown in the drawings; it being understood that changes may be made in the embodiment disclosed without departing from the spirit and scope of the invention.

What is claimed is:

1. A vibratory massage device, comprising:

first means for generating small amplitude oscillatory motion;

frame means having said first means securely affixed thereto, said frame means being formed from rigid, expanded metal means of rectangular shape having one end rolled and securely rejoined across said rigid metal means such that it forms a base frame and a headframe; and padding means covering said metal frame means.

2. A vibratory massage device as set forth in claim 1 which is further characterized in that:

said first means for generating oscillatory motion is securely affixed within said headframe portion of said frame means.

3. A vibratory massage device as set forth in claim 1 wherein said frame means comprises:

an expanse of expanded metal of the open diamond pattern.

4. A vibratory massage device as set forth in claim 3 wherein said expanded metal is further characterized in that:

said expanded metal is approximately 18 guage steel having diamond openings which measure approximately 1 inch in the long dimension.

5. A vibratory massage device as set forth in claim 1 wherein said padding means comprises:

a first expanse of padding means which is cemented to the entire one side of said frame means; and

a second expanse of padding means which is cemented to the other side of said frame means to coact with said first expanse of padding means thereby to cover said frame means.

6. A vibratory massage device as set forth in claim 1 wherein said frame means comprises:

an expanse of expanded metal of the open diamond pattern.

7. A vibratory massage device as set forth in claim 1 which is further characterized in that:

said frame means is formed from an expanse of expanded metal of the open diamond pattern having one end rolled and securely rejoined across said frame means such that it forms a flat base frame and a rolled headframe; and

said first means for generating oscillatory motion is securely affixed within the center of said rolled headframe.

8. A vibratory massage device as set forth in claim 7 which is further characterized to include:

outer cover means disposed in removable, form-fitting relationship about said entire frame means and padding means.

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