United States Patent

Sato

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[54] ELECTRICAL MASSAGE INSTRUMENT

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[30] **Foreign Application Priority Data**

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[52] **U.S. Cl.**.....**128/36,** 128/58
[51] **Int. Cl.**.....**A61h 1/00**
[58] **Field of Search**.....128/24.3, 36, 57, 58

[56] **References Cited**

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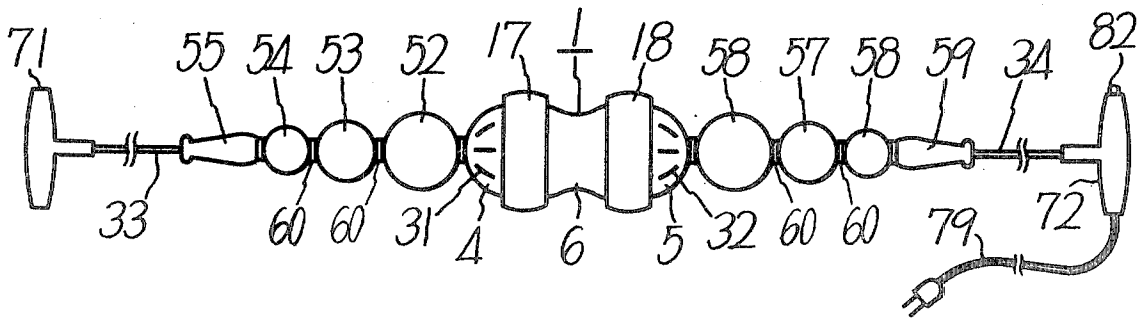
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Primary Examiner—L. W. Trapp
Attorney—Sughrue, Rothwell, Mion, Zinn and Macpeak

[57] **ABSTRACT**

An electrical massage instrument is provided which comprises a main body, 8-shaped in section, having connected at its opposite ends a pair of flexible strings each tying a plurality of spherical members in a row. The main body houses an electrically energized source of vibration such as an electric motor having eccentric weights mounted on the motor shaft. One of the tying strings include lead wires for supplying electric power to the source. The free ends of the tying strings are attached with grip members.

17 Claims, 8 Drawing Figures



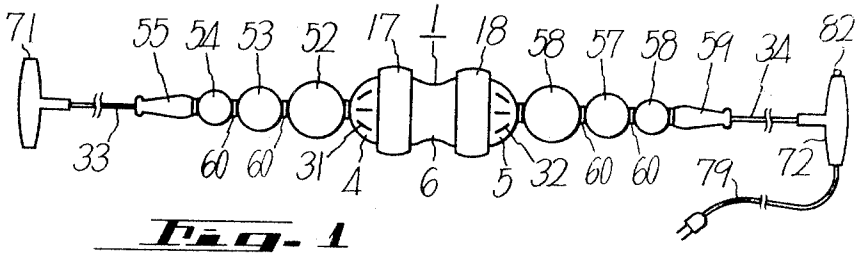


Fig. 1

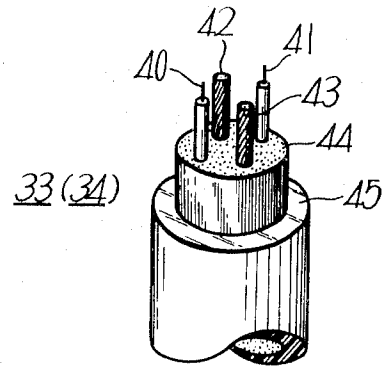


Fig. 7

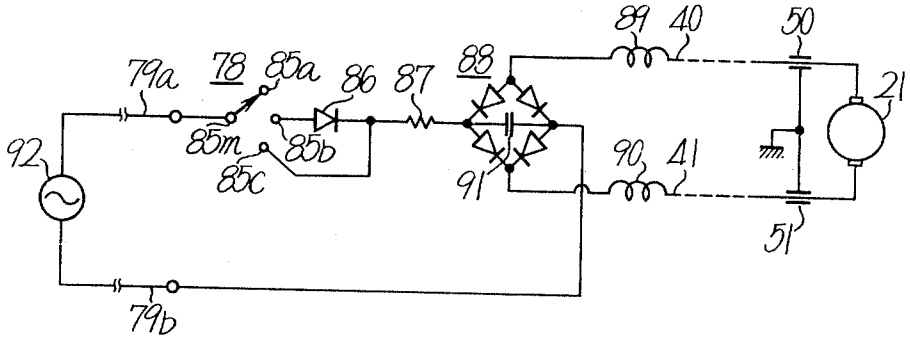


Fig. 8

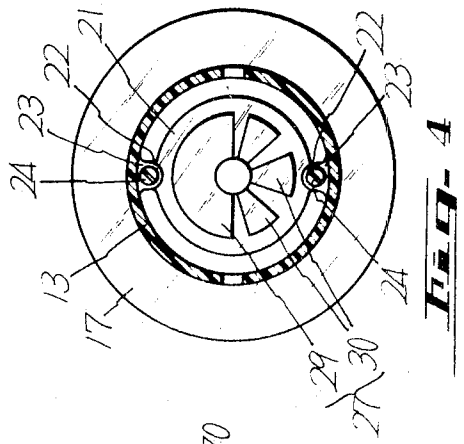


Fig. 4

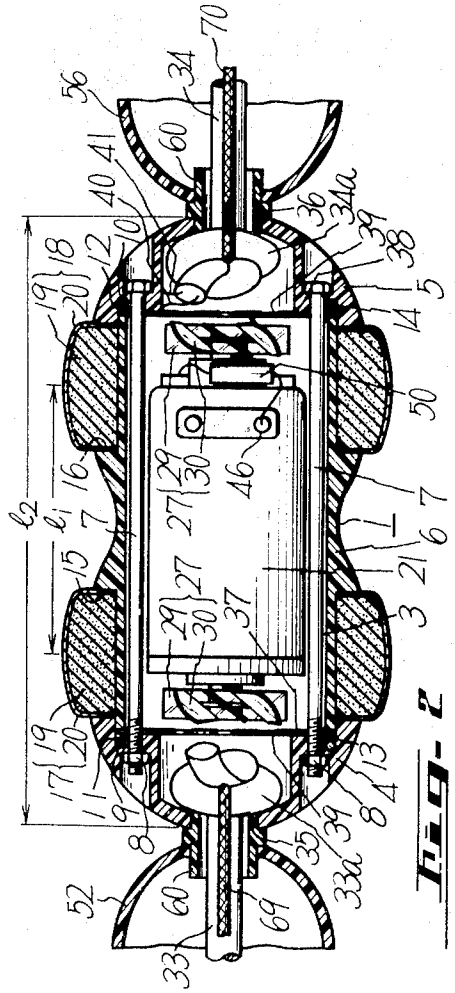


Fig. 2

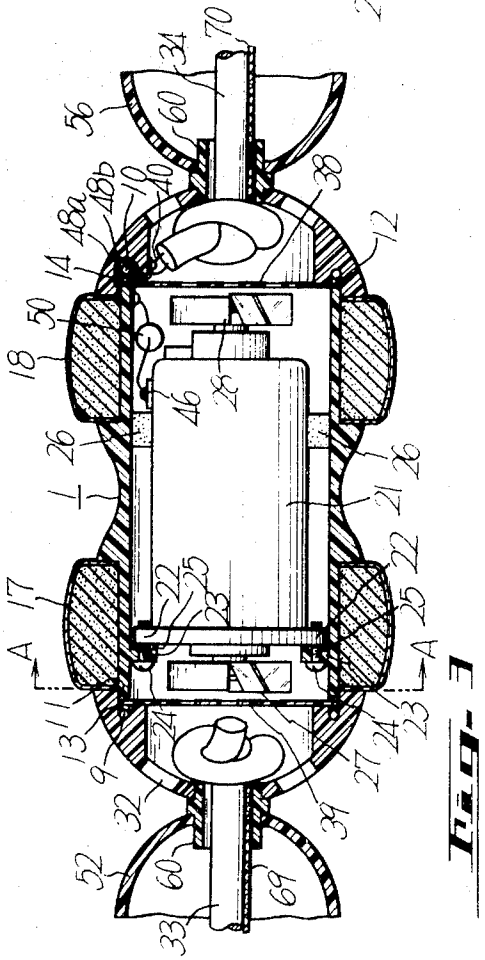


Fig. 3

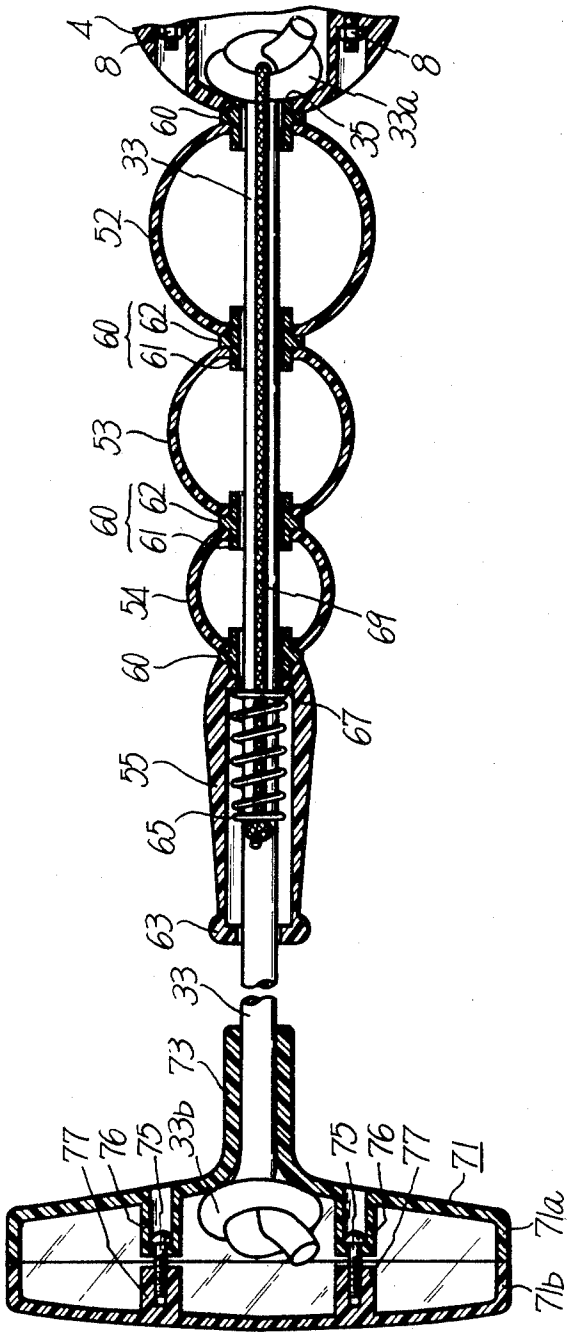

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Fig. 5

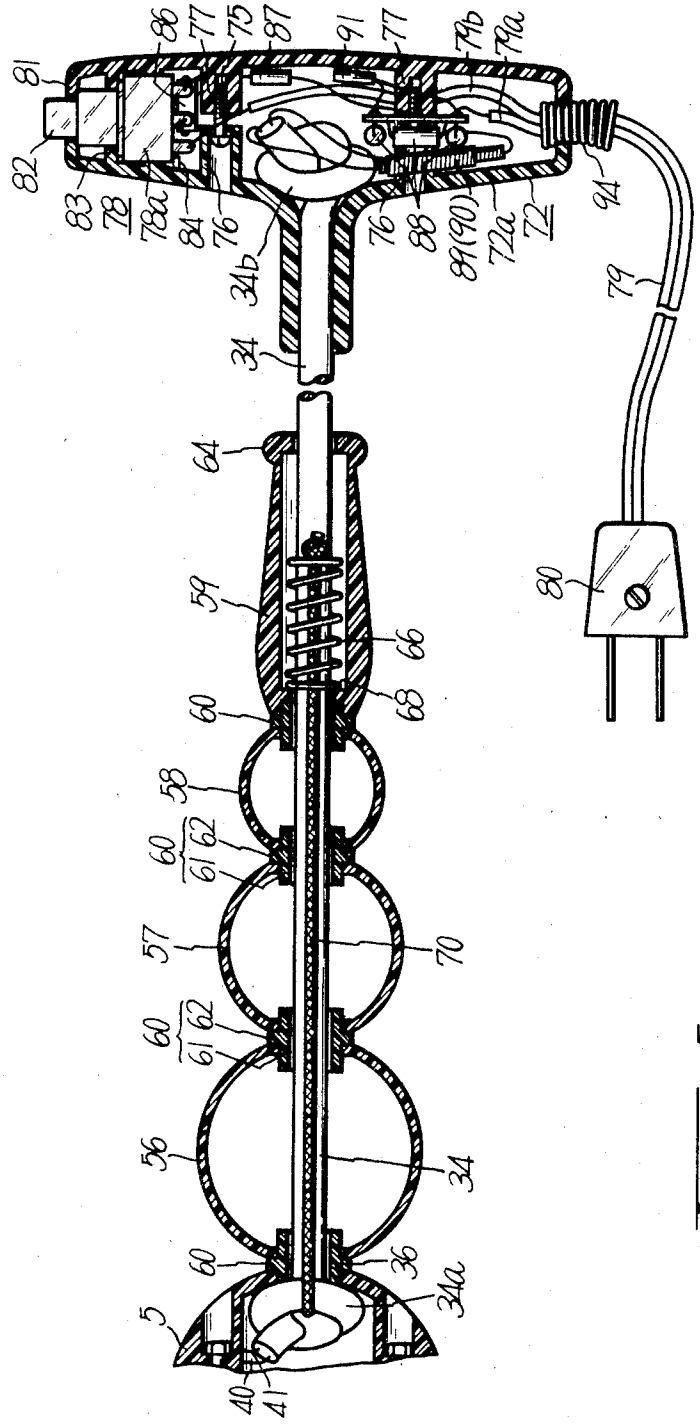

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Fig. 6

ELECTRICAL MASSAGE INSTRUMENT

The invention relates to an electrical massage instrument which is adapted to be energized with electric power to produce mechanical vibrations.

The prior art electrical massage instrument has been of such construction that a user holds the grip of the instrument with one hand to apply the vibrating body to which the grip is attached onto part of a human body, for example, shoulder, to be massaged, where it is desired to apply the instrument to the back of a human body and to move thereacross, the user could not operate it himself, but needed another's help. Even when the shoulder is to be massaged, the instrument has to be held in place against the shoulder, by the user's continued effort, causing undesirable fatigue of the hand strained. To provide the massaging of the back conveniently, there has been a proposal to mount a mechanical vibrator on the lazy back of a chair. However, the resulting apparatus becomes large-sized, requiring a wide space for its installation, accompanies handling inconveniences and is expensive.

Therefore, it is an object of the invention to provide a compact and easily operable electrical massage instrument.

It is another object of the invention to provide an electrical massage instrument capable of being manipulated by a user himself all over the human body.

It is a further object of the invention to provide an efficient electrical massage instrument.

It is still another object of the invention to provide an electrical massage instrument which is adapted to conform well or adjusts itself to the human body.

It is a still further object of the invention to provide an electrical massage instrument which can be applied to both the back and one arm of the human body.

It is yet another object of the invention to provide an electrical massage instrument having a control to adjust the intensity of the massaging.

It is an yet further object of the invention to provide a rigid and durable electrical massage instrument.

In accordance with the invention, the electrical massage instrument comprises a main body and a plurality of spherical members which are tied in a row on opposite sides of the main body by means of a pair of strings which are each connected at one end to the opposite ends of the main body. The free end of each string is attached to a grip member. The main body houses a source of vibration which is energized with electric power to produce mechanical vibrations, and lead wires extend through one of the strings to be connected with the source for power supply.

The length of the strings as measured between their attached grip members is shorter than a fathom or the distance between the extremities of both hands of an average man when opening his arms, but is greater than the breadth of the shoulders, so that is is a simple matter for a user, holding the grip members with both hands, to apply the main body against his back. The main body is substantially 8-shaped in section, with the axial separation between the two circles being chosen nearly equal to the distance between the muscular tissues which run vertically on opposite sides of the spinal column. The spherical members have gradually decreasing diameters as they are spaced further away from the main body, thereby rendering the whole spherical members more conforming to the human body or part thereof where the instrument is applied.

The drive source may comprise a small motor, for example, with an eccentric weight or weights attached to the motor shaft. The weight or weights may be mounted on a part of a cooling fan. Where the weights are mounted on the opposite ends of the motor shaft, they are located at an identical angular position with respect to the motor shaft.

The strings for tying the spherical members in rows must be sufficiently flexible and capable of withstanding high tensions. A string capable of withstanding the tension of 100 kilograms and 100,000 times of bending can be obtained, for example, by using several yarns of a polyester resin and a greater number of cotton yarns together with a coating layer of a suitable synthetic resin such as vinyl resin which encloses the both yarns as well as the lead wires extending to the source of vibration.

The spherical members are resiliently urged towards the main body so that the string can be flexible without causing their movement along the string. At this end, there is provided at each outer extremity of the series of spherical members a retention means in the form of a sleeve through which the string extends.

Loosely wound around each string within the retention means is a coiled spring, of which end nearer the grip member is engaged by one end of an auxiliary string which extends through the series of spherical members to be secured to the main body at its other end. In this way, the retention means and also the spherical members are urged by the coiled spring towards the main body.

Interposed between the main body and adjacent spherical members, between successive spherical members as well as between the outermost spherical members and associated retention means are buffer rings which reduce the collision between any adjacent members. The main body carries a buffer layer formed of, for example, polyethylene foam at its part preselected for contact with the human body.

The grip member at each end of the instrument is generally T-shaped in section, through the vertical bar of which extends the string to be anchored therein, the T-shape providing means for preventing slippage of a hand on the grip when the grips are held by both hands and pulled apart.

Similar means is provided in the form of a flange at the end of the retention means nearer the grip member so that these retention means may be gripped by both hands to use the instrument with a reduced length for massaging the neck, for example.

One of the grip members is provided with a control switch at one end of the horizontal bar of the T-shape, and to the other end is connected an electric supply cord. The switch controls on-off and the power level of the source of vibration contained within the main body. This may be achieved by having several positions of the switch in which the source is connected through either a full-wave or half-wave rectifier to the commercial supply or by connecting a resistor in the current path to the source. The power level may, if desired, be controlled continuously by means of an adjustable resistor.

With the electrical massage instrument mentioned above, it is possible to massage any part of the human body, by holding either the grip members, the retention means or the main body directly. Nevertheless the instrument is compact as a whole and can be stored in a relatively small space by bending or folding the flexible string.

Further features and details of the invention will become apparent from the following description with reference to the drawings, in which:

FIG. 1 is a plan view of the electrical massage instrument according to the invention,

FIG. 2 is a longitudinal section of the main body,

FIG. 3 is a longitudinal section in a plane at right angles to the plane of FIG. 2,

FIG. 4 is a cross section along the line A—A shown in FIG. 3,

FIG. 5 is a section showing one of the grip members and its linkage with the main body,

FIG. 6 is a section showing the other grip member and its linkage with the main body,

FIG. 7 is a perspective view showing one end of the string, and

FIG. 8 is a wiring diagram of the electrical circuit.

Referring to the drawings, the electrical massage instrument shown comprises a main body 1 formed of synthetic resin or hard rubber. In the example shown, the body 1 is 8-shaped in section along an axis, and has a hollow cylindrical inner space 3 which is defined by a pair of opposite semispherical parts 4 and 5 and an intermediate part 6, these parts being secured by a plurality of bolts 7 which extend from the part 5 to the part 4

through the space 3 adjacent the part 6 and are clamped in place by nuts 8. Buffering materials 9 and 10 which may comprise rubber rings may be interposed between the part 6 on one hand and the parts 4 and 5, respectively, on the other to provide antivibration effect. In the end face of each semispherical part 4 or 5 is formed an annular groove 11 or 12, respectively, which is concentric with the axis. It is within the bottom of these annular grooves 11 and 12 that the buffering material 9 and 10 are fitted, and the intermediate part 6 has its opposite end portions 13 and 14 of reduced thickness engaged with the annular grooves 11 and 12, respectively. The end faces of the end portions resiliently bear against the buffering materials 9 and 10. The main body 1 is formed with a pair of axially spaced, annular grooves 15 and 16 in coaxial relationship with the axis in the regions of its two spheres. In the grooves 15 and 16 are mounted elastic cushioning layers 17 and 18, respectively, each of which may comprise a layer of polyethylene foam 19 and its surrounding vinyl cover 20.

These cushioning layers project slightly beyond the outer periphery of the main body 1 for direct contact with the human body. The distance (l_1) between the both cushioning layers 17 and 18 is nearly equal to the separation between the muscular tissues on opposite sides of the spinal column of an average man, and typically measures 57 mm. for a main body 1 having the axial length (l_2) of about 130 mm.

Coaxially mounted within the inner space 3 of the main body 1 is an electric motor 21 which serves as the source of vibration. As shown in FIGS. 3 and 4, the motor 21 is provided with a plurality of projections 22 on the outer periphery of its one end, each projection 22 having a threaded hole formed therein. The main body 1 integrally carries a plurality of inward projections 23 in alignment with the projections 22 on the motor 21. Each projection 23 of the main body has a through hole, and a set screw 24 inserted through the hole in each projection 23 threadably engages the threaded hole in the projection 22 of the motor 21 for securing the motor 21 to the main body 1. A buffering piece 25 is interposed each pair of projections 22 and 23. To stabilize the mounting of the motor 21, a plurality of elastomers 26 are arranged at a suitable interval circumferentially around the opposite end of the motor 21 so as to be interposed between the outer periphery of the motor 21 and the inner periphery of the main body 1.

Referring to FIGS. 2 and 4, it will be seen that a pair of cooling fans 27 and 28 are mounted on the opposite ends of the motor shaft. These fans function as weights at the same time, and are constructed substantially in the form of discs such that one-half of the disc comprises iron or lead of substantial thickness to thereby provide a weight 29, while the other half comprises a plurality of segmental blades 30 which are arranged equiangularly and at a given angle with respect to the plane which is perpendicular to the axis. These blades 30 are formed so that upon rotation of the motor shaft, one of the fans 27 draws air into the motor 21 from outside the main body 1 and the other 28 withdraws air from the interior of the motor 21 for discharge externally. At this end, each of the semispherical parts 4 and 5 of the main body 1 is formed with a plurality of small apertures 31, 32, respectively, for the passage of air.

A pair of strings 33 and 34 have their one end attached to the opposite ends of the main body 1, as by making knots 33*a* and 34*a*, at said one end, of a size greater than the diameter of holes 35 and 36 which are formed in the semispherical parts 4 and 5 in alignment with the axis, thereby preventing the withdrawal or disengagement of the strings from the main body 1. In order to prevent the knots 33*a* and 34*a* from contact with the weights and fans 27 and 28 to interfere with the rotation thereof, partition plates 37 and 38 are located within the main body 1 between the weights and fans 27 and 28 and the knots 33*a* and 34*a*, respectively. The partition plates 37 and 38 are held sandwiched between the opposite end faces of the intermediate part 6 and the semispherical parts 4 and 5, respectively, and are formed with small holes 39 for allowing the air to pass therethrough.

The strings 33 and 34 have the same construction. In an example shown in FIG. 7, a string comprises a pair of parallel lead wires 40 and 41, each including 36 copper wires of 0.08 mm. in diameter twisted together, separated by a pair of groups of tough yarns of polyester resin such as tetron (trademark), each group including 10 such yarns, and a bundle of say, 200 cotton yarns 44 enclosing the lead wires and the strands therein and surrounded by a coating layer 45 of a flexible synthetic resin, for example, a pipe formed of vinyl chloride. The string thus formed may have a thickness on the order of 8 mm., and withstand the tension of 100 kilograms and 100,000 times of bending.

Returning to FIG. 2, the lead wires 40 and 41 within one of the strings, 34, are electrically connected with the terminals 46 and 47 of the motor 21. In order to provide such connection, one end portion having a reduced thickness of the intermediate part 6 is provided with contact pieces 48*a* and 49*a*, respectively, with which the motor terminals 46 and 47 are connected by means of through-type capacitors 50 and 51, respectively. Mating contact pieces 48*b* and 49*b* are nestedly received within the annular groove 12 of the semispherical part 5 at positions corresponding to the contact pieces 48*a* and 49*a*. The contact pieces 48*b* and 49*b* are directly connected with the lead wires 40 and 41, respectively. The arrangement is such that upon assembling the semispherical parts 4 and 5 and the intermediate part 6 together, an electrical connection is automatically made between the contact pieces 48*a*, 49*a* and the contact pieces 48*b*, 49*b*, respectively, so that the lead wires 40 and 41 are electrically connected with the motor terminals 46 and 47, respectively.

Each of the strings 33 and 34 serves tying a plurality of spherical members in a row. Thus, the string 33 ties spherical members 52, 53 and 54 and retention means 55 in a row, in the sequence named from inside towards the outside. The other string 34 similarly ties spherical members 56, 57 and 58 and retention means 59 in a row successively. These spherical members may be formed of similar material as the main body, such as synthetic resin, hard rubber or the like, and are made hollow and shaped to be substantially precise spheres of decreasing diameters as they are located further away from the main body 1. In addition, diametrically aligned holes are formed in each spherical member so that the string can extend therethrough. In the example shown, the main body 1 has the maximum transverse dimension or diameter of 62 mm., and the spherical members 52 and 56, 53 and 57, and 54 and 58 have the diameters of 50 mm., 40 mm. and 32 mm., respectively.

Annular members 60 which may comprise vinyl resin, for example, are interposed between the main body and the adjacent spherical members and between successive spherical members as well as between the outermost spherical members and the retention means. These annular members 60 serve as buffering material, not only diminishing the collision between any adjacent elements, but also preventing damages to the strings 33 and 34 caused by the edges of holes in the spherical members upon bending these strings in use. Furthermore, they extend partly into adjacent elements so that the string portions between them can be hidden from view. These effects are achieved by having the form of the annular member 60 shown which comprises a short cylinder 61 having an outer flange 62 intermediate its ends.

The retention means 55 and 59 are shaped for gripping convenience, and in the present example are in the form of a sleeve through which the string extends. The end of the sleeve remote from the main body 1 is peripherally formed with an integral, outwardly extending flange 63 or 64, which prevents slippage of hand out of the retention means when both of the retention means 55 and 59 are held by hands and pulled apart. In the example shown, the retention means 55 or 59 has an outer diameter of 24 mm.

Loosely wound around the strings 33 and 34 within the respective retention means 55 and 59 are coiled springs 65 and 66, respectively, the inner ends of which or the ends

nearer the main body 1, abut against shoulders 67 and 68, respectively, which are formed on the inner periphery of the sleeves 55 and 59, respectively. The other end of the coiled spring 65 or 66 is engaged by an auxiliary string 69 or 70, respectively. These auxiliary strings 69 and 70 extend through the respective coiled springs 65 and 66 along with the tying strings 33 and 34 and extend through the spherical members into the main body 1 to be tied with the knots 33*a* and 34*a* of the tying strings 33 and 34, respectively. The auxiliary strings 69 and 70 compress their associated springs 65 and 66, respectively, thereby causing the retention means 55 and 59 to resiliently urge the spherical members towards the main body.

Attached to the free ends of the tying strings 33 and 34 are grip members 71 and 72, respectively, which are generally in the form of hollow cylinders each having a guide tube 73 or 74 integrally formed therewith so as to extend at right angles thereto from a position intermediate the ends thereof. The tying strings 33 and 34 are passed through the guide tubes 73 and 74, respectively, to the interior of the grip members 71 and 72 in which their ends make knots 33*b* and 34*b* of a size greater than the inner diameter of the guide tubes 73 and 74. The grip members 71 and 72 each comprise two portions axially, that is, a semicylindrical portion 71*a* or 72*a* having the guide tube 73 or 74 respectively, and a semicylindrical portion 71*b* or 72*b*, these semicylindrical portions being secured together by means of threaded bolts 75. At this end, semicylindrical portions 71*a* and 72*a* or 71*b* and 72*b* of each pair are formed with aligned bosses 76 and 77. One of the bosses, 76, is formed an axially extending bore through which the bolt 7 is inserted and engages a threaded bore formed in the other semicylindrical portion 77 for clamping the portions 76 and 77 together.

The length of the instrument including the both strings and the main body, as measured between the grip members 71 and 72, is chosen shorter than the distance between the extremities of hands of an average man, when spread out, but greater than the breadth of the shoulders. Typically the length may be 120 cm. One of the grip members, 72, to which the string 34 including the lead wires 40 and 41 connected to the motor 21 is fastened is provided with a switch 78 at one end, and from the other end of the grip member 72 is taken out a power supply cord 79 having an attachment plug 80 at its free end.

In the example shown, the switch 78 is of pushbutton-type and is mounted substantially coaxially with the axis of the grip member 72 between an end plate 81 and its adjacent bosses 76 and 77. The switch 78 has an actuator button 82 which extends externally of the end plate 81 through a central hole therein, and a large diameter portion 78*a* of the switch housing is snapped in the space defined between a flange 83 and a projection 84, both formed on the inner wall of the housing, thereby holding the switch 78 in place within the grip member 72.

The switch 78 is constructed so that each time the actuator button 82 is pushed, a movable contact 85*m* is repeatedly moved into contact with stationary contacts 85*a*, 85*b* and 85*c* in turn, as is shown in the electrical wiring diagram of FIG. 8. As shown, the switch 78 is electrically connected with the power supply cord 79 and the motor 21. Thus the movable contact 85*m* is connected with a lead wire 79*a* which constitutes the cord 79 together with another lead wire 79*b*. The stationary contact 85*a* remains without electrical connection, which represents the off-position of the switch. The stationary contact 85*b* represents a low level position in which the lead wire 79*a* is connected with one of the input terminals of a full ware rectifier circuit 88, through a diode 86 and a protective resistor 87. The circuit 88 comprises four diodes connected in a bridge configuration, and the other input terminal is connected with the lead wire 79*b* directly. The stationary contact 85*c* represents a high-level position and is connected with a junction between the diode 86 and the resistor 87. The output terminals of the rectifier circuit 88 are connected with the lead wires 40 and 41, respectively, through choke coils 89 and 90 which suppress brush noises. Numeral 91 denotes a capacitor connected across the input terminals of the rectifier circuit 88 for minimizing the noise interferences. The lead wires 79*a* and 79*b* of the cord 79 may be connected with the commercial supply line by means of the plug 80.

When the movable contact 85*m* of the switch 78 is in its off-position or connected with the stationary contact 85*a*, the motor 21 is not fed with electric power and hence remains still. With the movable contact 85*m* connected with the contact 85*b*, the power is fed from the commercial supply line through the diode 86 and the circuit 88 to the motor 21. It is to be noted that at this time, the circuit 88 functions as a half-wave rectifier owing to the presence of the diode 86 in the supply path, so that the motor 21 rotates at a relatively low speed. However, when the movable contact 85*m* is connected with the contact 85*c*, a full-wave rectified output is supplied to the motor 21, which therefore rotates at a higher speed.

Referring to FIG. 6, the full-wave rectifier circuit 88 including the capacitor 91 is mounted on a common wiring substrate 93, which is formed with a central hole, the periphery of the this hole being clamped between those bosses 76 and 77 which are positioned away from the switch 78, upon assembling the grip member 72, thereby holding the substrate 93 in place within the grip member 72. The diode 86 is secured to the terminals of the switch 78 directly, the protective resistor 87 is located as extending between the switch 78 and the substrate 93, and the choke coils 89 and 90 are arranged on opposite sides of the bosses 76 and 77 which serve to secure the substrate 93. The cord 79 is admitted into the grip member 72 through a hole in the end plate that is opposite to the switch 78, the cord 79 being protected in this region by a coiled spring 94 as is conventional.

In use, the grip members 71 and 72 of the electrical massage instrument are held by both hands after the plug 80 has been inserted into a receptacle, and the main body 1 is applied to the body part to be massaged, for example, to the back. By operating the pushbutton 82 of the switch 78, the motor 21 is rotated, whereupon the weights 27 and 28 which are eccentrically mounted on the motor shaft rotate to produce vibrations which are transmitted to the body part through the cushioning layers 17 and 18. The switch 78 can be operated to control the intensity of the vibrations imparted through the main body 1, or to interrupt the operation of the instrument.

The main body 1 can also be carried across the shoulder with the saddle portion between the two spherical parts thereof located on the shoulder. By pulling the grip members 71 and 72 downwardly, a strong massaging effect is provided. Similarly, the main body 1 may be applied around the neck. When it is desired to massage a thigh, the retention means 55 and 59 can be held by both hands to apply the main body 1 against the thigh and the switch operated. Massaging an arm is also possible by holding the main body 1 directly with the other hand to apply the saddle portion of the main body 1 around said arm.

In this way, the electrical massage instrument of the invention can be operated by a user himself to massage every part of his body, without requiring another's help, and the switch operation can be made while holding the grip members 71 and 72. It will be appreciated that as compared with the prior art massage unit which is held by one hand, the massaging effect given by the instrument of the invention is more powerful while avoiding the fatigue of the strained hand. In addition, the whole construction is compact, without the need for a large-sized chair.

Because of the 8-shaped construction of the main body 1, when it is applied to the back, the two sphere portions can bear against the muscular tissues on opposite sides of the spinal column simultaneously. Decreasing diameters of the spherical members away from the main body permit good conformability of the instrument to the profile of the human body. Where the instrument is applied to a broad area such as the back, the vibrations of the main body 1 are also transmitted through adjacent spherical members. The vibrations from the main body 1 are transmitted in a direction perpendicular to

the surface of contact with the human body, but if the grip members **71** and **72** are moved along said surface either vertically or transversely while keeping the strings **33** and **34** tensioned, the massaging effect is improved by addition of frictional massaging.

During the use, the tying strings may be bent sharply as required by forcing the spherical members to conform to the body part where the main body **1** is applied, thereby forcing the spherical members apart against the urging force of the coiled springs **65** and **66** so that the spacing between adjacent elements is greater on the outside of the curvature than on the inside thereof. The T-shaped construction of the grip members **71** and **72** facilitates the handling in that they act as stops for the hands when pulling the tying strings outwardly. It will be seen that depending upon the body part to be massaged, the grip members **71** and **72** or the retention means **55** and **59** may be held by hands to use the instrument with an increased or short length, respectively, or the main body **1** may be directly held by hand or hands.

In the above arrangement, mounting the both weights **27** and **28** at the same angular position with respect to the motor shaft is effective to provide powerful vibrations. By constructing these weights **27** and **28** integrally with the cooling fans, the overall size can be reduced. While in the above description, the source of vibration comprises an electric motor associated with weights, it may comprise an electromagnet to produce vibrations. Furthermore, the auxiliary strings **57** and **58** may be tubular so as to enclose the tying strings therein.

What is claimed is:

1. An electrical massage instrument comprising a main body having a hollow space, a pair of flexible strings connected at one end with the opposite ends of the main body and each tying a plurality of spherical members in a row, a pair of grip members connected with the free end of each tying string, a source of vibration housed within the space of the main body and adapted to produce mechanical vibrations upon energization with electric power, and lead wire means extending through at least one of the tying strings and electrically connected with the source of vibration for supplying electric power thereto.

2. An electrical massage instrument according to claim **1**, further including switch means mounted on one of the grip members which is connected with the lead wire means electrically connected with the source of vibration for controlling the supply of electric power thereto, and a power supply cord taken out of said one grip member.

3. An electrical massage instrument according to claim **2** in which said switch means includes means for turning the supply of power on and off, and means to vary the level of power supplied.

4. An electrical massage instrument according to claim **1** in which the source of vibration comprises an electric motor and an weight mounted on the motor shaft.

5. An electrical massage instrument according to claim **4** in which the motor includes a cooling fan mounted on the motor shaft and said weight is located eccentrically of the fan.

6. An electrical massage instrument according to claim **4** in which a pair of weights are mounted on the opposite ends of the motor shaft at substantially the same angular position with respect thereto.

7. An electrical massage instrument according to claim **1**, further including a pair of retention means carried on the tying strings at the opposite outer extremities of the series of the spherical members, and urging means for urging the retention means towards the main body.

8. An electrical massage instrument according to claim **7** in which the urging means is located within each retention means and comprises a coiled spring wound around the tying string, and an auxiliary string extending through the spherical members and engaging with the end of the coiled spring nearer the associated grip member at one end and with the main body at the other.

9. An electrical massage instrument according to claim **7** in which the retention means is in the form of a sleeve through which the associated tying string extends, the end of the sleeve nearer the grip member being formed with a flange.

10. An electrical massage instrument according to claim **1**, further including a plurality of buffering rings interposed between adjacent elements on the tying strings.

11. An electrical massage instrument according to claim **1**, in which the length of the instrument between the both grip members when the strings are pulled straight is shorter than the distance between the extremities of both hands of an average man opening the arms, but is greater than the breadth of the shoulders.

12. An electrical massage instrument according to claim **1** in which each of the tying strings is connected with an intermediate portion of the associated grip member at right angles thereto.

13. An electrical massage instrument according to claim **1** in which the main body has a transverse dimension which is greater than the diameter of any spherical member, and the spherical members have decreasing diameters as they are located further away from the main body.

14. An electrical massage instrument according to claim **1**, in which the main body is provided with a spongelike, elastic cushioning layer at a portion thereof designed for contact with the human body.

15. An electrical massage instrument according to claim **1**, in which the main body is substantially 8-shaped in section.

16. An electrical massage instrument according to claim **15** in which the separation between two sphere portions of the main body is chosen nearly equal to the distance between muscular tissues extending vertically on the opposite sides of the spinal column of the human body.

17. An electrical massage instrument according to claim **1** in which each of the tying strings comprises a plurality of yarns of polyester resin, a greater number of cotton yarns, and a coating layer of flexible synthetic resin which surrounds the both yarns.

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