

FLEXIBLE MASSAGER

BACKGROUND OF THE INVENTION

1. Field of the Invention

The present invention relates to a flexible massager capable of easily and effectively massaging a desired part, such as the shoulder, the neck, the back, the waist, and the armpit, of the body.

2. Description of the Related Art

Various kinds of massagers have conventionally been developed and put into practical use as apparatuses for massaging the shoulder, the neck, the back, the waist, the armpit, or the like of the body. However, most of such massagers for massaging each part of the body are configured as one of functions incorporated in chair-type massage apparatuses.

Meanwhile, a massage apparatus described in Japanese Utility Model Registration No. 3087864 (hereinafter referred to as "Patent Document 1") is configured to be used in such a manner that the apparatus is hung on the shoulder of the body and carried on the back. In addition, the apparatus has a structure including: first massage means for performing massage while moving along the back of the body; second massage means for pressing the shoulder of the body from the front and back; and third massage means for pressing the neck of the body while surrounding the neck from the left and right.

Accordingly, the massage apparatus of Japanese Utility Model Registration No. 3087864 (hereinafter referred to as "Patent Document 1") is configured to be carried on the shoulder for massaging the shoulder, the back, and the neck. This configuration makes the apparatus complicated and increases the weight of the apparatus to some extent. For this reason, the apparatus is disadvantageous in that once the apparatus is carried on the shoulder or the back, the weight of the apparatus places a strain on the body. Moreover, the massage apparatus is inconvenient in that the position where massage is to be performed cannot be freely changed.

Furthermore, although the massage apparatus of Japanese Utility Model Registration No. 3087864 (hereinafter referred to as "Patent Document 1") has such a structure as to be carried on the shoulder, the massage apparatus includes no means for supporting the first, second, and third massage means in a state where these means are pressed against the

body. For this reason, each massage means may not efficiently act on the body.

Note that in the conventional chair-type massager, the back of the body can be pressed against the massager by laying the back on the massager provided on the back portion of the chair. However, the massage apparatus of Japanese Utility Model Registration No. 3087864 is incapable of supporting the back of the body in such a pressed state.

SUMMARY OF THE INVENTION

An object of the present invention is to provide a flexible massager different from the above-described conventional apparatuses in that the flexible massager is capable of being held and handled with hands and massaging desired parts, such as the shoulder, the neck, the back, the waist, and the armpit, of the body with an easy operation, and further allows a pressing force to be adjusted while applying the pressing force to a part of the body which is desired to be massaged with a simple operation.

In order to achieve the above-mentioned object, a first aspect of the present invention is a flexible massager which includes: a plurality of vibrators arranged at predetermined intervals, each of the vibrators having opening portions formed on opposite sides of the vibrator; a pair of bearing support portions formed with a gap at a center therebetween in an inside between the opening portions; a pair of bearings provided in the respective bearing support portions; an unbalancer made of a weight having an eccentric axis and provided between the bearings; a shaft receiving portion being coaxial with the unbalancer in the bearings on the opposite sides of the unbalancer; a flexible shaft being flexibly bendable, the flexible shaft coupling the shaft receiving portions to each other by between each adjacent ones of the vibrators; and a protection tube configured to protect an outer periphery of the flexible shaft between each adjacent vibrators and having end portions joined to the opening portions of the each adjacent vibrators; a handle member; a handle-case; and a motor housed in the handle-case. Here, an end of a whole of the flexible shaft is rotatably connected to the handle member while another end of the whole of the flexible shaft is connected to the motor, and the unbalancer in each vibrator is eccentrically rotated by the motor in the handle-case.

A second aspect of the present invention is the flexible massager

according to the first aspect, in which a length and a hardness of each of the flexible shaft provided between each adjacent vibrators and the protection tube protecting the flexible shaft are adjusted so that the flexible shaft and the protection tube bend at the same radius of curvature, making it possible for the flexible shaft between each adjacent vibrators to bend without coming into contact with an inner peripheral surface of each protection tube.

A third aspect of the present invention is the flexible massager according to any one of the first and second aspects. Here, in the configuration where the shaft receiving portions each coaxial with the unbalancer in the respective bearings on the opposite sides of the unbalancer are coupled to each other by the flexible shaft between each adjacent vibrators, a wire shaft formed of a single wire is inserted through a shaft hole formed in each shaft receiving portion, and the wire shaft is fixed by a locking screw screwed from an outer periphery of the unbalancer toward the shaft hole of each shaft receiving portion.

A fourth aspect of the present invention is the flexible massager according to any one of the first and second aspects. Here, in the configuration where the shaft receiving portions coaxial with the unbalancer in the respective bearings on the opposite sides of the unbalancer are coupled to each other by the flexible shaft between each adjacent vibrators, each shaft receiving portion is formed integrally with the corresponding unbalancer and provided with shaft portions projecting on the opposite sides of the shaft receiving portion, the shaft portions are rotatably supported by the respective bearings, and the opposed shaft portions in each adjacent vibrators are coupled to each other by a spring shaft formed of a flexible spring.

A fifth aspect of the present invention is the flexible massager according to any one of the first and second aspects. Here, in the configuration where the shaft receiving portions coaxial with the unbalancer in the respective bearings on the opposite sides of the unbalancer are coupled to each other by the flexible shaft between each adjacent vibrators, each shaft receiving portion is formed integrally with the corresponding unbalancer and provided with shaft portions projecting on the opposite sides of the shaft receiving portion, the shaft portions are rotatably supported by the respective bearings, and the opposed shaft portions in each adjacent vibrators are coupled to each other by a shaft formed of a flexible rubber or

elastomer.

The flexible massager of the present invention is configured as described above, and thus can be used as follows. Specifically, the handle member and the handle-case provided on the opposite sides of the flexible shaft are gripped with the respective hands of a user, and the entirety of the flexible shaft is tensioned by the forces of the arms of the user. The motor in the handle-case is then driven in a state where the vibrators are in contact with desired parts, such as the shoulder, the neck, the back, the waist, and the armpit, of the body.

Once the flexible shaft starts to be rotated by the driving of the motor as describe above, the unbalancers in the respective vibrators eccentrically rotate, thereby generating vibration in the vibrators. At this time, the user can fine-adjust the pressing forces of the respective vibrators in contact with parts of the body by pulling the handle member and the handle-case gripped with the hands in a direction to tension the flexible shaft. In addition, the vibration generated in each vibrator in such a state massages a desired part such as the shoulder, the neck, the back, the waist, the armpit, and the like of the body which is stiff or having poor blood circulation, and relaxes the stiffness and promotes the blood circulation of such a part, thus relieving the fatigue of the body.

As described above, the present invention is capable of fine-adjusting the tension between the handle member and the handle-case gripped by the respective hands of the user by means of the forces of the arms of the user, and is also capable of fine-adjusting a position at which each vibrator comes into contact with the body by the operation with the hands of the user. Accordingly, the present invention is capable of applying the massage effect of the vibrators to the back and the like of the body, which are usually difficult for the user to reach with the hands, by the very simple configuration and manipulation.

In addition, according to the present invention, the flexible shaft provided between each adjacent vibrators and the protection tube protecting the flexible shaft are configured to bend at the same radius of curvature, so that the flexible shaft rotates and bends such that the rotating flexible shaft does not come into contact with the inner peripheral surface of the protection tube. The flexible shaft is thus capable of smoothly rotating, making it possible to prevent the protection tube from being damaged and worn.

Moreover, according to the present invention, the configuration where the shaft receiving portions coaxial with the unbalancer in the respective bearings on the opposite sides of the unbalancer are coupled to each other by the flexible shaft between each adjacent vibrators may be achieved by using the wire shaft formed of a single wire, the spring shafts each formed of a flexible spring, or the shafts formed of a flexible rubber or elastomer.

Therefore, with any of the flexible shafts, the single motor incorporated in the handle-case is capable of transmitting the rotation force generated by its rotation to the flexible shaft and thereby eccentrically rotating the unbalancers.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is an overall view of a flexible massager according to the present invention.

FIG. 2 is a perspective view showing an inside of one of vibrators in Embodiment 1 of the flexible massager according to the present invention.

FIG. 3 is a plan view showing the inside of the one vibrator in Embodiment 1 of the flexible massager according to the present invention.

FIG. 4 is a cross-sectional view of the one vibrator in Embodiment 1 of the flexible massager according to the present invention.

FIG. 5 is a cross-sectional view showing an attachment state of a wire shaft in the one vibrator in Embodiment 1 of the flexible massager according to the present invention.

FIG. 6 is a perspective view showing a state where spring shafts are attached to one of vibrators in Embodiment 2 of the flexible massager according to the present invention.

FIG. 7 is a plan view showing the state where the spring shafts are attached to the one vibrator in Embodiment 2 of the flexible massager according to the present invention.

FIG. 8 is a cross-sectional view showing the state where the spring shafts are attached to the one vibrator in Embodiment 2 of the flexible massager according to the present invention.

FIG. 9 is a perspective view showing a state where shafts each formed of a rubber or elastomer are attached to one of vibrators in Embodiment 3 of the flexible massager according to the present invention.

FIG. 10 is a plan view showing the state where the shafts each formed of the rubber or elastomer are attached to the one vibrator in Embodiment 3 of the flexible massager according to the present invention.

FIG. 11 is a cross-sectional view showing the state where the shafts each formed of the rubber or elastomer are attached to the one vibrator in Embodiment 3 of the flexible massager according to the present invention.

FIG. 12 is a perspective view showing an embodiment in which locking screws are provided to an unbalancer and a shaft receiving portion in the flexible massager according to the present invention.

FIG. 13 is a perspective view showing an embodiment in which an unbalancer and a shaft receiving portion are integrally formed in the flexible massager according to the present invention.

FIGS. 14A to 14D are perspective views showing how the flexible massager according to the present invention is used.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

Embodiments of the present invention will be described below with reference to the drawings.

Embodiment 1

A flexible massager 1 according to the present invention is configured, as shown in FIG. 1, such that unbalancers 4 in a plurality of vibrators 3 coupled to one another by a flexible shaft 2 are eccentrically rotated by an electric motor 6 in a case 5 also serving as a handle (hereinafter referred to as a "handle-case 5."). Note that in FIG. 1, one of protection tubes 8 is broken away to show the flexible shaft 2 inside the one protection tube 8.

Embodiment 1 of such a flexible massager 1 will be described in detail. Note that in Embodiment 1, the flexible shaft 2 coupling the plurality of vibrators 3 is formed of a wire shaft 18.

As shown in FIG. 1, the flexible massager 1 of Embodiment 1 includes the plurality of vibrators 3 arranged at predetermined intervals. The number of the vibrators 3 shown in FIG. 1 is six for one flexible massager 1 but is not limited to the specific number. The number of the vibrators 3 may be increased or decreased in conjunction with adjustment of the entire length of the flexible massager 1, adjustment of the length of the flexible shaft 2 between each adjacent ones of the vibrators 3, 3, and the like.

In addition, each vibrator 3 of the present invention preferably has a

substantially spherical contour shape. Alternatively, each vibrator 3 may have a plurality of protrusions (not shown) formed on the outer periphery of the vibrator 3 to enhance a massage effect.

FIG. 2 shows a vibrator case 3a having a hemispherical shape, which is obtained by dividing the outline of each vibrator 3 in half. The vibrator 3 having a substantially spherical shape can be formed by fitting the vibrator case 3a and an opponent vibrator case 3b having a hemispherical shape, which is shown in FIG. 4, to each other, and then screwing locking screws 3d respectively into screw hole portions 3c provided in the vibrator case 3a. In addition, opening portions 7 are formed on opposite sides of each vibrator 3. A circular outer attachment portion 7a for attaching an annular recess portion 8a of the protection tube 8 (see FIG. 3), which will be described later, is formed in the peripheral portion of each of the opening portions 7. Moreover, a circular inner attachment portion 7b is similarly formed inward of the outer attachment portion 7a. As described later, the outer and inner attachment portions 7a and 7b are fitted for fixation into the annular recess portions 8a and 8b at two positions in each end portion of the protection tube 8.

Moreover, a pair of bearing support portions 10, 10 are formed with a gap 9 at the center, inside each vibrator 3, and between the opening portions 7, 7 on the opposite sides. FIG. 2 shows the shape of a half, which is provided in the vibrator case 3a, of each bearing support portion 10. As shown in FIG. 4, the other half of the bearing support portion 10, which is provided in the opponent vibrator case 3b, is united with the half in the vibrator case 3a to form the circular bearing support portion 10, in which a bearing 11 is fitted.

With the above-described configuration, a pair of the bearings 11, 11 are attached with the predetermined gap 9 at the center and inside each vibrator 3, and the unbalancer 4 made of a weight having an eccentric axis is provided between the pair of bearings 11, 11. Two screw holes 13 into which locking screws 12 are respectively screwed toward the axis are formed in the outer periphery of the unbalancer 4. The locking screws 12 thus can be screwed into the screw holes 13.

In addition, the unbalancer 4 is configured as follows. As shown in FIG. 4 or 5, a shaft receiving portion 14 is fixed at an eccentric position in a disk-shaped metal weight and is also fixed in inner races of the respective

left and right bearings 11, 11. In this way, the common shaft receiving portion 14 is provided in the unbalancer 4 at the center and in the bearings 11 at the left and right sides of the unbalancer 4.

Moreover, as shown in FIG. 4, the two screw holes 13 extending from the outer periphery of the above-described unbalancer 4 toward the axis are formed to penetrate the shaft receiving portion 14 as well. A sharp portion 12a formed on a front end of the locking screw 12 to be screwed into each screw hole 13 is thus capable of being screwed toward a through-hole 14a formed in the shaft receiving portion 14.

Accordingly, the single wire shaft 18 can be fixedly attached to the unbalancer 4 by inserting the wire shaft 18 through the through-hole 14a formed at the center of the shaft receiving portion 14, and screwing the locking screws 12 into the respective screw holes 13. In Embodiment 1, the wire shaft 18 is formed of a single flexible metal wire, and the plurality of vibrators 3 arranged at the predetermined intervals on the long wire shaft 18 can be coupled to one another by the above-described method.

In Embodiment 1, as shown in FIG. 3 or 4, the screw holes 13 are formed from the outer periphery to the inside of the unbalancer 4, and the locking screws 12 are screwed into the screw holes 13 to fix the wire shaft 18 with the sharp portions 12a on the front ends of the locking screws 12. Alternatively, such a configuration as shown in FIG. 12 may be employed as another embodiment.

Specifically, the configuration shown in FIG. 12 is described below. The distance between the unbalancer 4 and each of the bearings 11, 11 on the opposite sides is made longer than that in Embodiment 1. A screw hole 13b is formed in the shaft receiving portion 14 between the unbalancer 4 and one of the bearings 11. A locking screw 12b is screwed into the screw hole 13b to fix the wire shaft 18 with the sharp portion 12a on the front end of the locking screw 12b (see FIG. 4). In this way, the fixing force for the wire shaft 18 can be enhanced. It should be noted that this method of fixing the wire shaft 18 may be modified such that the wire shaft 18 is fixed by using any one of the locking screws 12 and 12b instead of the fixation using the locking screws 12 screwed into the screw holes 13 in the unbalancer 4 and the locking screw 12b screwed into the screw hole 13b provided in the shaft receiving portion 14 between the unbalancer 4 and the bearing 11. Here, the configuration shown in FIG. 12 is applicable to Embodiment 2 or 3 which

will be described later.

In addition, although in Embodiment 1, the unbalancer 4 and the shaft receiving portion 14 are provided as separate parts as shown in FIG. 4 or 5, the unbalancer 4 and the shaft receiving portion 14 may be integrally formed as shown in FIG. 13. Note that the configuration shown in FIG. 13 is also applicable to Embodiment 2 or 3 described later.

Moreover, as shown in FIG. 3, the annular recess portions 8a and 8b at two positions in each end portion of the protection tube 8, provided between each adjacent vibrators 3, 3, for protecting the outer periphery of the wire shaft 18 are coupled at the two portions with the outer and inner attachment portions 7a and 7b of the opening portion 7 of the corresponding vibrator 3. In this way, the attachment strength of each end portion of each protection tube 8 is enhanced. In such a configuration, the protection tubes 8 are formed of flexible corrugated tubes or the like and configured to protect the wire shaft 18 with a certain clearance on the outer periphery of the wire shaft 18. In addition, the length and hardness of each of the protection tube 8 and the wire shaft 18 may be adjusted so that the protection tube 8 and the wire shaft 18 bend at the same radius of curvature, making it possible for the wire shaft 18 to bend without coming into contact with the inner peripheral surface of each protection tube 8.

Further, one end of the whole of the wire shaft 18 is rotatably connected to a handle member 15 while the other end of the whole of the wire shaft 18 is connected to the electric motor 6 housed in the handle-case 5.

In such a configuration, the handle member 15 may be manufactured from a hard synthetic resin or the like, and the outer periphery of the handle member 15 may be covered with a non-slip rubber member. This makes it possible to form the handle member 15 with a structure capable of being easily gripped by the user with one hand. In addition, the wire shaft 18 is made rotatable by providing an unillustrated bearing inside the handle member 15 and fixing one end of the wire shaft 18 on a shaft receiving portion of the bearing.

Moreover, as shown in FIG. 1, the handle-case 5 is manufactured from a hard synthetic resin or the like, and a space is formed inside the handle-case 5. The electric motor 6, a control board 21, and a switch 22 are provided inside the space, and a rotary shaft 6a of the electric motor 6 and the end portion of the wire shaft 18 are connected to each other with a joint

6b.

Further, the electric motor 6, the control board 21, and the switch 22 are electrically connected to one another. Rotating a knob 23 exposed to the outside from the switch 22 turns on and off the electric motor 6 and also adjusts the rotation speed of the electric motor 6. Note that a power cord 24 is connected to the control board 21, allowing a necessary power to be supplied to the control board 21 and the electric motor 6 through the power cord 24.

With the above-described configuration, driving the electric motor 6 inside the handle-case 5 by operating the switch 22 rotates the whole of the wire shaft 18 and eccentrically rotates the unbalancers 4 in the respective vibrators 3, thus generating vibration in the vibrators 3.

Accordingly, the flexible massager 1 of the present invention can be used as shown in FIGS. 14A to 14D by a user gripping the handle member 15 and the handle-case 5 provided at the opposite ends of the wire shaft 18 respectively using the hands, and driving the electric motor 6 inside the handle-case 5 shown in FIG. 1. Rotation of the wire shaft 18 by the driving of the electric motor 6 causes the unbalancers 4 in the respective vibrators 3 to eccentrically rotate, thus generating vibration in the vibrators 3.

In this event, as shown in FIG. 14A to 14D, the pressing forces of the respective vibrators 3 in contact with their corresponding parts of the body can be fine-adjusted by pulling the flexible massager 1 by the user gripping the handle member 15 and the handle-case 5 with the hands.

Note that FIGS. 14A to 14D show how the flexible massager 1 of the present invention is used to massage parts of the body. FIG. 14A shows how to massage the back, FIG. 14B shows how to massage the back side of the neck, FIG. 14C shows how to massage the waist, and FIG. 14D shows how to massage the armpit.

As described above, as shown in each of FIGS. 14A to 14D, when any part of the body is to be massaged, the flexible massager 1 of the present invention is capable of easily and efficiently massaging a part of the body which is difficult for the user to reach with the hands. The vibration generated in each vibrator 3 massages a part of the body which is stiff or having blood circulation, and relaxes the stiffness and promotes the blood circulation of such a part, thus relieving the fatigue of the body.

Embodiment 2

A flexible massager 1 of Embodiment 2 is configured as shown in FIGS. 6 to 8 such that a shaft receiving portion 16 configured to be coaxial with an unbalancer 4, which is provided in each of vibrators 3, in bearings 11 provided on the opposite sides of the unbalancer 4 is formed integrally with the unbalancer 4. Shaft portions 16a and 16b are formed to project on the opposite sides of the shaft receiving portion 16, and an end portion of a spring shaft 19 which is used as a flexible shaft 2 of Embodiment 2 is joined to each of the shaft portions 16a and 16b.

In such a configuration, a protection tube 8 is provided on the outer periphery of the spring shaft 19 as in Embodiment 1. The length and the hardness of each of each protection tube 8 and each spring shaft 19 may be adjusted so that the protection tube 8 and the spring shaft 19 bend at the same radius of curvature, making it possible for the spring shaft 19 to bend without coming into contact with the inner peripheral surface of the protection tube 8.

In addition, the internal structure of each vibrator 3 is provided with the unbalancer 4 configured to eccentrically rotate between the left and right bearings 11, 11 as in Embodiment 1. Moreover, the configuration in which one end of the whole of the spring shafts 19 is rotatably connected to a handle member 15 while the other end of the whole of the spring shafts 19 is connected to an electric motor 6 housed in a handle-case 5 is the same manner as that shown in FIG. 1.

Accordingly, driving the electric motor 6 by operating a switch 22 inside the handle-case 5 rotates the whole of the spring shafts 19 and eccentrically rotates the unbalancers 4 provided in the respective vibrators 3, thereby generating vibration in the vibrators 3. It is thus possible to massage desired parts, such as the shoulder, the neck, the back, the waist, and the armpit, of the body by the operation as shown in FIGS. 14A to 14D.

Embodiment 3

A flexible massager 1 of Embodiment 3 is configured as shown in FIGS. 9 to 11 such that a shaft receiving portion 17 configured to be coaxial with an unbalancer 4, which is provided in each of vibrators 3, in bearings 11 provided on the opposite sides of the unbalancer 4 is formed integrally with the unbalancer 4 in the same manner as that described in Embodiment 2. Shaft portions 17a and 17b are formed to project on the opposite sides of the shaft receiving portion 17, and an end portion of a shaft 20 which is formed of

a rubber or elastomer and which is used as a flexible shaft 2 of Embodiment 3 is joined to each of the shaft portion 17a and 17b.

In such a configuration, a protection tube 8 is provided on the outer periphery of the shaft 20 formed of the rubber or elastomer, as in Embodiment 1. The length and the hardness of each of each protection tube 8 and each shaft 20 formed of the rubber or elastomer may be adjusted so that the protection tube 8 and the shaft 20 bend at the same radius of curvature, making it possible for the shaft 20 formed of the rubber or elastomer to bend without coming into contact with the inner peripheral surface of each protection tube 8.

In addition, the internal structure of each vibrator 3 is provided with the unbalancer 4 configured to eccentrically rotate between the left and right bearings 11, 11 as in Embodiment 1. Moreover, the configuration in which one end of the whole of the shafts 20 formed of the rubber or elastomer is rotatably connected to a handle member 15 while the other end of the whole of the shafts 20 formed of the rubber or elastomer is connected to an electric motor 6 housed in a handle-case 5 is the same manner as that shown in FIG. 1.

Accordingly, driving the electric motor 6 by operating a switch 22 inside the handle-case 5 rotates the whole of the shafts 20 formed of the rubber or elastomer and eccentrically rotates the unbalancers 4 provided in the respective vibrators 3, thereby generating vibration in the vibrators 3. It is thus possible to massage desired parts, such as the shoulder, the neck, the back, the waist, and the armpit, of the body by the operation as shown in FIGS. 14A to 14D.

Industrial Applicability

The flexible massager of the present invention is capable of being held and handled with hands, and massaging desired parts, such as the shoulder, the neck, the back, the waist, and the armpit, of the body with an easy operation. Moreover, the flexible massager is capable of being utilized as a flexible massager allowing a pressing force to be adjusted while applying the pressing force to a part of the body which is desired to be massaged with a simple operation.

What is claimed is:

1. A flexible massager comprising:

- a plurality of vibrators arranged at predetermined intervals, each of the vibrators including opening portions formed on opposite sides of the vibrator;

- a pair of bearing support portions formed with a gap at a center therebetween in an inside between the opening portions;

- a pair of bearings provided in the respective bearing support portions;

- an unbalancer made of a weight having an eccentric axis and provided between the bearings;

- a shaft receiving portion being coaxial with the unbalancer in the bearings on the opposite sides of the unbalancer;

- a flexible shaft being flexibly bendable, the flexible shaft coupling the shaft receiving portions to each other by between each adjacent ones of the vibrators;

- a protection tube configured to protect an outer periphery of the flexible shaft between each adjacent vibrators and having end portions joined to the opening portions of the each adjacent vibrators;

- a handle member;

- a handle-case; and

- a motor housed in the handle-case, wherein

- an end of a whole of the flexible shaft is rotatably connected to the handle member while another end of the whole of the flexible shaft is connected to the motor, and

- the unbalancer in each vibrator is eccentrically rotated by the motor in the handle-case.

2. The flexible massager according to claim 1, wherein a length and a hardness of each of the flexible shaft provided between each adjacent vibrators and the protection tube protecting the flexible shaft are adjusted so that the flexible shaft and the protection tube bend at the same radius of curvature, making it possible for the flexible shaft between each adjacent vibrators to bend without coming into contact with an inner peripheral surface of each protection tube.

3. The flexible massager according to any one of claims 1 and 2, wherein in the configuration where the shaft receiving portions each coaxial with the unbalancer in the respective bearings on the opposite sides of the unbalancer are coupled to each other by the flexible shaft between each adjacent vibrators,

a wire shaft formed of a single wire is inserted through a shaft hole formed in each shaft receiving portion, and

the wire shaft is fixed by a locking screw screwed from an outer periphery of the unbalancer toward the shaft hole of each shaft receiving portion.

4. The flexible massager according to any one of claims 1 and 2, wherein in the configuration where the shaft receiving portions coaxial with the unbalancer in the respective bearings on the opposite sides of the unbalancer are coupled to each other by the flexible shaft between each adjacent vibrators,

each shaft receiving portion is formed integrally with the corresponding unbalancer and provided with shaft portions projecting on the opposite sides of the shaft receiving portion,

the shaft portions are rotatably supported by the respective bearings, and

the opposed shaft portions in each adjacent vibrators are coupled to each other by a spring shaft formed of a flexible spring.

5. The flexible massager according to any one of claims 1 and 2, wherein in the configuration where the shaft receiving portions coaxial with the unbalancer in the respective bearings on the opposite sides of the unbalancer are coupled to each other by the flexible shaft between each adjacent vibrators,

each shaft receiving portion is formed integrally with the corresponding unbalancer and provided with shaft portions projecting on the opposite sides of the shaft receiving portion,

the shaft portions are rotatably supported by the respective bearings, and

the opposed shaft portions in each adjacent vibrators are coupled to

each other by a shaft formed of a flexible rubber or elastomer.