KNEADING NECK MASSAGER

TECHNICAL FIELD

The present invention relates to massage devices, and more particularly to a kneading neck massager.

BACKGROUND

In recent years, with the development of society, work and life paces of people get faster and faster, work pressure has been increasing, and relaxation time becomes less and less. As time passes, people will feel physically and mentally tired. Especially for people bending over desk for a long time, their cervical vertebraes keep being in a particular state for a long time, and their neck muscles are in a non-coordinated stress state at the same time, which results in that muscles of their napes and their ligaments are prone to be stretched and strained. Besides, excessive torsions and bending, etc., can easily cause cervical spondylosis.

As a result, a variety of neck and shoulder massagers appears on the market. However, most of these massagers use rolling massage or vibration massage, and the massage effect on necks and shoulders cannot achieve the effect of manually kneading. Although massagers with kneading massage function have appeared on the market, kneading massage effect of these massagers is poor, and some of these massagers need to be manually operated. Furthermore, these massagers have complex and unreasonable structures, are inconvenient to use, and have only a single function.

SUMMARY

Technical problem to be solved by the present invention is to overcome the deficiencies of the prior art, so the present invention provides a kneading neck massager which is simple in structure, easy to operate, convenient to use, and has good massage effect.

In order to solve the above problems, the technical solutions of the present invention are as follow: Provide a kneading neck massager includes: an U-shaped

neck pillow that can be hung on a human neck, an inside of the U-shaped neck pillow is provided with two massage contacts arranged symmetrically relative to a human cervical vertebrae ; wherein, the inside of the U-shaped neck pillow is further provided with at least one chute, a crank and connecting rod mechanism configured for driving the two massage contacts to slide along the chute and carry out knead massage, a power element coupled with the crank and connecting rod mechanism, and a control circuit controlling the movement of the power element.

specifically, the crank and connecting rod mechanism includes a crankshaft arranged between the two massage contacts and coaxially and rotatably connected with the power element, a first crank and a second crank fixed successively along the axial direction of the crankshaft and being coaxially rotatable with the crankshaft, and a first connecting rod and a second connecting rod fixed on the first crank and the second crank respectively and extending toward two opposite sides of the crankshaft respectively; wherein the first connecting rod and the second connecting rod are connected with the two massage contacts respectively.

Specifically, the power element is a DC gear motor; a housing is arranged within the U-shaped neck pillow, the chute is defined in the housing, a motor shaft of the DC gear motor is inserted into one side wall of the housing and is axially connected to one end of the crankshaft, the other end of the crankshaft is inserted into another side wall of the housing, and each of the two ends of the crankshaft is provided with a bearing.

Specifically, the chute includes a left chute and a right chute for the two massage contacts to slide respectively, and the massage contacts are slidingly coupled to the left chute and the right chute by balls.

Specifically, each of the left chute and the right chute includes a first chute and a second chute defined in two opposite side walls of the housing respectively, and a third chute that is opposite to the first chute and a forth chute that is opposite to the second chute are defined in two side walls of each of the two massage contacts respectively; some of the balls are arranged between the third chute and the first chute, and some of the balls are arranged between the second chute and the fourth chute.

Further, each of the massage contacts includes a massage finger and a slider

arranged at the bottom of the massage finger, the slider is slidably arranged along the chute within the housing, and the massage finger extends from a wall of the housing and protrudes toward the inside of the U-shaped neck pillow.

Further, the control circuit includes a music play circuit, and a socket coupled with an external headphone or speaker is arranged on one end of one of the side arms of the U-shaped neck pillow.

Further, comprising a battery charger, wherein one end of one of the side arms of the U-shaped neck pillow is provided with a charging port, one end of the battery charger is coupled with an external power source, and the other end of the battery charger is inserted in the charging port.

Further, a battery configured for providing power to the control circuit is arranged in the U-shaped neck pillow.

Further, handrails for human hands to insert and hold the U-shaped neck pillow are defined in the two side arms of the U-shaped neck pillow respectively.

In the present embodiment, the two massage contacts are arranged symmetrically and configured to simulate human hands, and thus can achieve kneading massage effect as human hands. At the same time, the crank and connecting rod mechanism is used to drive the massage contacts to move. The crank and connecting rod mechanism is simple in structure, reasonable and compact in design, occupies small space, and is driven by the power element, which avoids manual operations, outputs strong power, effectively achieves massage effect, and is easy to use.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a structural schematic view of a kneading neck massager in accordance with a preferred embodiment of the present invention;

FIG. 2 is an exploded view of a kneading neck massager in accordance with an embodiment of the present invention;

FIG. 3 is an enlarged schematic view of the area A shown in the FIG. 2;

FIG. 4 is a schematic view of a crank and connecting rod mechanism coupled with a housing, in accordance with an embodiment of the present invention;

FIG. 5 is a schematic view of a kneading neck massager cut from the center portion thereof, in accordance with an embodiment of the present invention.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

In order to make the purpose, technical solutions and the advantages of this application more clearly, the present invention will be explained below in detail with reference to the accompanying drawings and embodiments. It is to be appreciated that the following description of the embodiment(s) is merely to explain this application, but is no way intended to limit the invention.

FIG. 1 and FIG. 2 show a kneading neck massager in accordance with the present invention. The kneading neck massager includes a(U-shaped neck pillow 100 that can be hung on a human neck, and an inside of the U-shaped neck pillow 100 is provided with two massage contacts 200 arranged symmetrically relative to a human cervical vertebrae. A housing 300 is arranged within the U-shaped neck pillow 100, and the inside of the housing 300 is provided with a chute 310, a crank and connecting rod mechanism 400 configured for driving the two massage contacts 200 to slide along the chute 310 and carry out kneading massage, a power element 500 coupled with the crank and connecting rod mechanism 400, and a control circuit 600 controlling the movement of the power element 500. In the present embodiment the two massage contacts 200 are arranged symmetrically and configured to simulate the operation of human hands, and thus can achieve kneading massage effect as human hands. At the same time, the crank and connecting rod mechanism 400 is used to drive the massage contacts 200 to move. The crank and connecting rod mechanism 400 is simple in structure, reasonable and compact in design, occupies small space, and is driven by the power element 500, which avoids manual operations, outputs strong power, effectively achieves good massage effect, and is easy to use.

Specifically, the crank and connecting rod mechanism 400 includes a crankshaft 410 arranged between the two massage contacts 200, a first crank 420 and a second crank 430 fixed successively along the axial direction of the crankshaft 410, and a first connecting rod 440 and a second connecting rod 450 connected with the first

crank 420 and the second crank 430 respectively; the first connecting rod 440 and the second connecting rod 450 extend toward the left side and the right side of the crankshaft 410 respectively, and distal ends of the first connecting rod 440 and the second connecting rod 450 are connected with the two massage contacts 200 respectively. In this embodiment, the first connecting rod 440 and the second connecting rod 450 are fixedly connected with the two massage contacts 200 by screws. When the crankshaft 410 rotates, the first crank 420 and the second crank 430 are driven to rotate, and the first connecting rod 440 and the second connecting rod 450 are driven to move rectilinearly along directions perpendicular to the crankshaft 410 at two opposite sides of the crankshaft 410 respectively. Since the distal ends of the first connecting rod 440 and the second connecting rod 450 are connected with the two massage contacts 200 respectively, the two massage contacts 200 slide along the chute 310 too. It can be seen in FIG. 2 and FIG.3, the crank and connecting rod mechanism 400 is simple in structure, easy to implement, and compact in design, and occupies small space. Thus, the overall weight of the U-shaped neck pillow 100 is reduced, so that the U-shaped neck pillow 100 is easy to be carried, and a great weight is avoided when the U-shaped neck pillow 100 is hung on a neck.

As shown in the FIG. 2 and FIG. 4, the power element 500 is a DC gear motor, the advantages of using the DC gear motor to provide power are small vibration, low noise, and high energy conservation. A first insertion hole 320 is defined in a side wall of the housing 300, a motor shaft 510 of the DC gear motor is inserted into the housing 300 through the first insertion hole 320 and is axially connected to one end of the crankshaft 410, and the end of the crankshaft 410 connected with the motor shaft 510 is provided with a bearing 700. A second insertion hole 330 is defined in another side wall of the housing 300, the other end of the crankshaft 410 is inserted into the second insertion hole 330, and another bearing 700 is mounted between the crankshaft 410 and the second insertion hole 330. By using this kind of bear group fixed on the two ends of the crankshaft 410, the bearings 700 mounted at the two ends of the crankshaft 410 have a certain rigidity and strength to carry a certain load and prevent the crankshaft 410 from displacing axially, and thereby ensure the

synchronous rotation accuracy between the crankshaft 410 and the motor shaft 510. In this embodiment, both the two bearings 700 can be miniature bearings, which have small external diameters, occupy small space, and meet the requirements of high rotation speeds and low noises.

In this embodiment, the chute 310 includes a left chute 311 and a right chute 312 for the two massage contacts 200 to slide respectively, and the massage contacts 200 are slidingly connected with the left chute 311 and the right chute 312 by balls 800. In this embodiment, friction caused by leftward and rightward movements of the massage contacts 200 is reduced by rolling the balls 800 in the chute 310, so that the massage contacts 200 slide more flexibly and noise is reduced.

Specifically, in this embodiment, the housing 300 is formed by a first housing 340 and a second housing 350 connected together. The first housing 340 and the second housing 350 are curved in an arc shape, and the housing 300 formed by joining the first housing 340 and the second housing 350 together is curved in an arc shape too. A wall of the first housing 340 and a wall of the second housing 350 form two opposite side walls of the housing 300 respectively. Each of the left chute 311 and the right chute 312 includes a first chute 313 and a second chute 314 defined in the two opposite walls of the housing 300 respectively, that is, the first chute 313 is defined in the first housing 340, and the second chute 314 is defined the second housing 350. Therefore, the first chute 313 and the second chute 314 are also curved in arc shapes to fit with the shape of a human neck, so that sliding routes of the massage contacts 200 in the chute 310 fit with the shape of the neck too, and massage contacting the neck tightly can be achieved. A third chute 210 that is opposite to the first chute 313 and a fourth chute 220 that is opposite to the second chute 314 are respectively defined in two side walls of each of the massage contacts 200. Some of the balls 800 are arranged between the first chute 313 and third chute 210, and some of the balls 800 are arranged between the opposite second chute 314 and fourth chute 220. Thus, the massage contacts 200 are slidingly arranged in the chute 310 through the balls 800 disposed at both sides of each of the massage contacts 200, and the sliding balance of the massage contacts 200 is ensured by disposing the balls 800 on

both sides of each of the massage contacts.

In this embodiment, each of the two massage contacts 200 includes a massage finger 230 and a slider 240 arranged at the bottom of the massage finger 230, and the third chute 210 and the fourth chute 220 are defined in two opposite sides of the slider 240 respectively. As shown in FIG. 2, since each slider 240 has a certain length, in order to ensure sliding smoothness of the sliders 240, in this embodiment, two third chutes 210 and two fourth chutes 220 are defined in each of the sliders 240, and are arranged along the length direction of the slider 240, that is, each of the sliders 240 is slid by four balls 800. The massage fingers 230 extend from the wall of the housing 300 and protrude toward the inside of the U-shaped neck pillow 100. In this embodiment, elastic massage sleeves (not labeled in the figures) are mounted on each of the massage fingers 230, so that the neck massage is more comfortable and safe by contacting the neck with the elastic sleeves.

Referring to FIG. 2, FIG. 5, the control circuit 600 further includes a music play circuit (not shown in the figures), the U-shaped neck pillow 100 has two side arms 110, and one end of one of the side arms 110 is provided with a socket 120 coupled with an external headphone or speaker. The U-shaped neck pillow 100 is further provided with a control panel 130, the control panel 130 is arranged at the bottom of one side arm 110, so that users can use their thumbs to operate buttons on the control panel 130 when their hands hold the side arm 110. An on/off button, and a "+" button and a "-" button for adjusting up/down the volume of the music play circuit, are all arranged on the control panel 130. When the socket 120 is connected with an external headphone or speaker, the on/off button is started, the massager starts to work, and people can listen to beautiful music at the same time through the headphone or speaker, so that people can not only relieve the neck fatigue but also enjoy music at the same time to maintain good mental states and achieve the purpose of relaxation.

In this embodiment, the kneading neck massager further includes a battery charger (not shown in the figures) for charging the control circuit 600. One end of one of the side arms 110 of the U-shaped neck pillow 100 is provided with a charging port 140, one end of the battery charger is coupled to an external power source, and the

other end of the battery charger is inserted in the charging port 140.

In this embodiment, the inside of the U-shaped neck pillow 100 is provided with a battery 150 for providing power to the control circuit 600. The battery 150 is used as a backup battery that can be used to provide power to the control circuit 600 when the massanger is carried and used outside, so that the use of the massager is facilitated.

Furthermore, in this embodiment, holding holes 160 serving as handrails in use are defined in both the two side arms 110 of the U-shaped neck pillow 100. The shapes of the holding holes 160 are similar to the shapes of gripped hands. When using the massager, two hands are inserted into the holding holes 160 to firmly grasp the U-shaped neck pillow 100; on one hand, it is ensured that the massage contacts 200 at the inside of the grasped U-shaped neck pillow 100 contact the neck better so as to massage; on the other hand, because of the role of the hands, the U-shaped neck pillow 100 is prevented from slipping from the neck when the massage causes vibration.

The above-mentioned description is only a preferred embodiment of the present invention which is not therefore limit the patent range of the present invention. Any equivalent structures or equivalent processes transform or the direct or indirect use in other related technical fields made by the specification and the FIG. s of the present invention are similarly included the range of the patent protection of the present invention.

What is claimed is:

1. A kneading neck massager comprises an U-shaped neck pillow that can be hung on a human neck, wherein, an inside of the U-shaped neck pillow is provided with two massage contacts arranged symmetrically relative to a human cervical vertebrae ; wherein, the inside of the U-shaped neck pillow is further provided with at least one chute, a crank and connecting rod mechanism configured for driving the two massage contacts to slide along the chute and carry out knead massage, a power element coupled with the crank and connecting rod mechanism, and a control circuit controlling the movement of the power element.

2. The kneading neck massager as claimed in claim 1, wherein the crank and connecting rod mechanism comprises a crankshaft arranged between the two massage contacts and coaxially and rotatably connected with the power element, a first crank and a second crank fixed successively along the axial direction of the crankshaft and being coaxially rotatable with the crankshaft, and a first connecting rod and a second connecting rod fixed on the first crank and the second crank respectively and extending toward two opposite sides of the crankshaft respectively; wherein the first connecting rod and the second connecting rod are connected with the two massage contacts respectively.

3. The kneading neck massager as claimed in claim 2, wherein the power element is a DC gear motor; a housing is arranged within the U-shaped neck pillow, the chute is defined in the housing, a motor shaft of the DC gear motor is inserted into one side wall of the housing and is axially connected to one end of the crankshaft, the other end of the crankshaft is inserted into another side wall of the housing, and each of the two ends of the crankshaft is provided with a bearing.

4. The kneading neck massager as claimed in claim 3, wherein the chute comprises a left chute and a right chute for the two massage contacts to slide respectively, and the massage contacts are slidingly coupled to the left chute and the right chute by balls.

5. The kneading neck massager as claimed in claim 4, wherein each of the left

chute and the right chute comprises a first chute and a second chute defined in two opposite side walls of the housing respectively, and a third chute that is opposite to the first chute and a forth chute that is opposite to the second chute are defined in two side walls of each of the two massage contacts respectively; some of the balls are arranged between the third chute and the first chute, and some of the balls are arranged between the second chute and the fourth chute.

6. The kneading neck massager as claimed in claim 3, wherein each of the massage contacts comprises a massage finger and a slider arranged at the bottom of the massage finger, the slider is slidably arranged along the chute within the housing, and the massage finger extends from a wall of the housing and protrudes toward the inside of the U-shaped neck pillow.

7. The kneading neck massager as claimed in claim 1, wherein the control circuit further comprises a music play circuit, and a socket coupled with an external headphone or speaker is arranged on one end of one of the side arms of the U-shaped neck pillow.

8. The kneading neck massager as claimed in claim 1, further comprising a battery charger, wherein one end of one of the side arms of the U-shaped neck pillow is provided with a charging port, one end of the battery charger is coupled with an external power source, and the other end of the battery charger is inserted in the charging port.

9. The kneading neck massager as claimed in claim 1 or claim 8, wherein a battery configured for providing power to the control circuit is arranged in the U-shaped neck pillow.

10. The kneading neck massager as claimed in claim 1, wherein handrails for human hands to insert and hold the U-shaped neck pillow are defined in the two side arms of the U-shaped neck pillow respectively.