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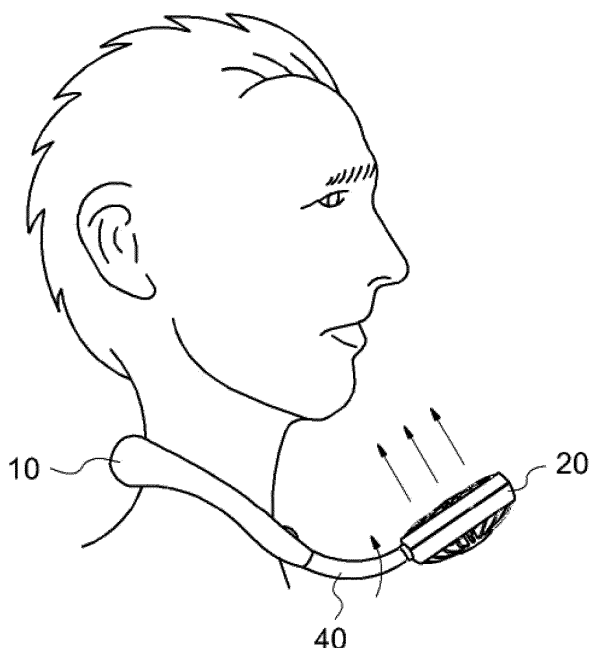
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(54) **NECK BAND-TYPE FAN**

(57) The present invention relates to a neck band type fan and, more specifically, relates to a neck band type fan, allowing a user to wear a fan on a neck and use the same, so as to cool a face, a chest, and the like in a state in which both hands are free. The neck band type fan of the present invention comprises: a main body

formed in a shape which surrounds the back of a neck and has both ends descending to a lower portion of the front of the neck when worn; a head provided on both ends of the main body and having an inner space and a plurality of wind holes; and a blade installed in the head and rotated by a motor to generate wind.

[FIG. 6]



Description

[Technical Field]

[0001] The present invention relates to a neck band type fan, and more specifically, to a neck band type fan configured to allow a fan to be worn on a neck and used to cool a face, chest, or the like in a state in which both hands are free.

[Background Art]

[0002] Generally, a fan includes a stationary type fan and a wall mounted type fan, wherein the stationary type fan is erected on a floor to be used and the wall mounted type fan is hung on a wall to be used. In the fan, blades are installed on a shaft of a motor and rotate to generate wind and cool heat.

[0003] Further, recently, a portable fan is widely in use, and the portable fan is formed of a handle which can be gripped by a hand, a head formed of a mesh on an upper end of the handle, and blades installed in the head. The portable fan is manufactured in a small size to be portable and can be easily used anywhere and at any time.

[0004] However, since the fan should be gripped by the hand, one hand cannot be used.

[0005] Patent Application No. 10-1701828, Laid Open Publicized Utility Model No. 20-1999-0037235, and Registered Utility Model Publication No. 20-0483235 disclose necklace type fans, and since the above are hung on a neck to be used, both hands are free.

[0006] However, the necklace type fan is not efficient because a head in which blades are installed, or a band hung on the neck, freely moves without being fixed to the body or a direction thereof is not capable of being adjusted.

[Disclosure]

[Technical Problem]

[0007] The present invention is directed to providing a neck band type fan hung on a neck, configured to come into close contact with the neck to prevent from shaking, and configured to adjust a head part provided with blades in a desired direction.

[Technical Solution]

[0008] One aspect of the present invention provides a neck band type fan including a main body formed in a shape which surrounds the back of a neck and has both ends descending to a lower portion of the front of the neck when worn; a head provided respectively at both ends of the main body and having an inner space and a plurality of wind holes; and blades installed in the head and rotated by a motor to generate wind.

[0009] Further, both ends of the main body may be

bent or curved in an upward direction toward a face.

[0010] In addition, angle adjusting parts may be provided between both ends of the main body and the heads to adjust directions of the heads.

[0011] In addition, the main body may be formed in the shape which surrounds the back of the neck and has both ends descending to the lower portion of the front of the neck, and may have a self-elastic restoring force.

[0012] In addition, a space may be formed in the main body, a plurality of discharge holes may be formed in the main body in directions facing the neck, and a fan rotated by a motor may be installed in the main body so that wind is discharged through the discharge holes.

[0013] In addition, each of the angle adjusting parts may be formed of at least one rotary bar and at least one joint.

[0014] In addition, each of the angle adjusting parts may be formed of a soft pipe body and may have a plurality of iron cores configured to maintain a bent or curved shape therein.

[0015] In addition, the main body may be provided with sliding prevention silicone in a surface which comes into contact with the neck.

[0016] In addition, a replaceable sanitary pad may be attached to the surface which comes into contact with the neck in the main body.

[0017] In addition, the heads may be provided with a plurality of lamps.

[0018] In addition, a Bluetooth module may be installed in the main body, and earphones connected to the Bluetooth module may be provided on both ends of the main body.

[0019] In addition, a shielding cover configured to block introduction of a hair is installed on a back surface of the head.

[Advantageous Effects]

[0020] Since a neck band type fan according to the present invention is worn on a neck to be used and thus hands are free, various tasks and activities become easier, and since a head in which blades are embedded can be adjusted at a desired angle, a direction of wind can be freely adjusted.

[0021] Further, the neck band type fan can be laid on a table, a floor, or the like to be used and can also be gripped by a hand to be used like a hand type fan.

[0022] In addition, when the head is located in a direction facing a main body, since the volume decreases, the neck band type fan can be easily kept in a bag or the like.

[Description of Drawings]

[0023]

FIG. 1 is a perspective view illustrating a structure of a neck band type fan according to the present invention.

FIG. 2 is a front view illustrating the structure of the neck band type fan according to the present invention.

FIG. 3 is a side view illustrating the structure of the neck band type fan according to the present invention.

FIG. 4 is a front view illustrating a state in which a pad is attached to a main body according to the present invention.

FIG. 5 is a front view illustrating a state in which discharge holes are formed in the main body according to the present invention.

FIG. 6 is an in-use state view illustrating a state in which the neck band type fan according to the present invention is worn.

FIGS. 7A and 7B are exemplary views illustrating a neck band type fan according to another embodiment of the present invention.

FIG. 8 is an exemplary view illustrating a neck band type fan according to still another embodiment of the present invention.

FIG. 9 is an exemplary view illustrating a neck band type fan according to yet another embodiment of the present invention.

[Modes of the Invention]

[0024] Hereinafter, an exemplary embodiment of a neck band type fan according to the present invention will be described in detail with reference to the accompanying drawings.

[0025] FIG. 1 is a perspective view illustrating a structure of a neck band type fan according to the present invention, FIG. 2 is a front view illustrating the structure of the neck band type fan according to the present invention, FIG. 3 is a side view illustrating the structure of the neck band type fan according to the present invention, FIG. 4 is a front view illustrating a state in which a pad is attached to a main body according to the present invention, FIG. 5 is a front view illustrating a state in which discharge holes are formed in the main body according to the present invention, and FIG. 6 is an in-use state view illustrating a state in which the neck band type fan according to the present invention is worn.

[0026] As shown in the drawings, the neck band type fan according to the present invention includes a main body 10 which is worn on a neck, heads 20 provided on both ends of the main body 10 and having inner spaces formed therein and a plurality of wind holes 21, and blades 30 installed in the heads 20 and rotated by a motor to generate wind.

[0027] The main body 10 is formed in a 'U' shape so that both ends descend to a lower portion of the front of the neck while surrounding the back of the neck and has a space into which a rechargeable battery (B) and a wire (W) may be inserted. The main body 10 is manufactured using a material having an elastic restoring force and thus may be worn by holding and spreading both ends

of the main body. Further, the rechargeable battery (B) is embedded in the main body 10. Of course, a disposable battery may be used instead of the rechargeable battery (B).

[0028] The heads 20 are installed on both ends of the main body 10 and a plurality of protection meshes are formed in both surfaces of a circular frame of the head. An inner space is formed in the head and wind holes 21 are formed between the protection meshes. Accordingly, air may be easily introduced from the outside to the inside and easily discharged from the inside to the outside.

[0029] Here, head 20 may be formed in a shape having a cylindrical form with an inner space and in which the wind holes 21 are formed by perforating both surfaces.

[0030] The blades 30 are installed in the heads 20, the motor is fixed to and installed in the inside of each of the heads 20, and the blades 30 are installed on a motor shaft to be rotated. The motor is electrically connected to the rechargeable battery (B) by the wire (W) so as to be driven.

[0031] Meanwhile, angle adjusting parts 40 are provided between both ends of the main body 10 and the heads 20 to adjust directions of the heads 20.

[0032] Each of the angle adjusting parts 40 are formed of a soft pipe body 41 and a plurality of iron cores 42 installed in the soft pipe body 41. As described above, since the angle adjusting parts 40 maintain a state of being bent or curved by a user due to the iron cores 42 provided therein, the heads 20 may be positioned in a desired direction.

[0033] Here, the angle adjusting parts 40 may be omitted. In this case, since the ends of the main body 10 are bent or curved in an upward direction, the heads and the blades 30 installed at the ends of the main body 10 may face a user's face.

[0034] Further, as shown in FIG. 4, a flat silicone pad 12 may be attached to a surface of the main body 10 which comes in contact with the neck in a predetermined area. In this case, the main body 10 will not slip from the neck due to a material characteristic of the silicone pad 12 such that a wearing sensation is significantly improved.

[0035] Here, a sanitary pad 13 may be attached to the main body 10 instead of the silicone pad 12. The sanitary pad 13 may be attached and detached using Velcro tape or the like and may be replaced when it becomes dirty.

[0036] Further, as shown in FIG. 5, in the main body 10, a space is formed, a plurality of discharge holes 11 are formed in directions facing the neck, and a fan 14 rotated by the motor is installed so that the wind is discharged through the discharge holes 11. As described above, since the wind is discharged to the discharge holes 11, a portion which comes into contact with the neck is prevented from becoming sweaty.

[0037] Finally, a plurality of switches (SW) may be installed on the outside of the main body 10 to control a conduction state or adjust intensity of the wind, and each of the heads 20 includes a plurality of lamps (not shown)

to be turned on or off according to selection of the user.

[0038] An operation effect of the above-described neck band type fan according to the present invention will be described in detail.

[0039] First, the user grips both ends of the main body 10 and then slightly spreads both ends of the main body 10 to wear the main body 10 from the back of the neck to the front of the neck. Then, since both ends of the main body 10 are spread and the neck band type fan is worn on the neck, the main body comes into close contact with the back of the neck. In addition, when both hands are released, since the spread main body 10 becomes narrow again and extends to the front of the neck to descend, wearing the neck band type fan is completed.

[0040] As shown in FIG. 6, in this state, a front surface of the head 20 faces the face by bending or curving the angle adjusting part 40. In this case, the angle adjusting part 40 is bent in a direction of a force applied by the user by the soft pipe body 41 and the iron cores 42 provided in the pipe body 41 and maintains a bent state when the applied force is removed.

[0041] Next, when the blades 30 are rotated by operating the switch (SW), since the wind blows toward the front surface of the head 20 and the wind moves toward the face, the face becomes cool.

[0042] As described above, since the neck band type fan of the present invention is worn on the neck to be used and thus the hands are free, various tasks and activities become easier, and since the head 20 in which the blades 30 are embedded may be adjusted at a desired angle, a direction of the wind may be freely adjusted.

[0043] Further, the neck band type fan may be laid on a table, a floor, or the like to be used, and thus may be used as a stand type, and may be gripped by the hand to be used like a hand type fan.

[0044] In addition, when the head 20 is positioned in a direction facing the main body 10, since the volume thereof decreases, the neck band type fan may be easily kept in a bag or the like.

[0045] FIGS. 7A and 7B are exemplary views illustrating a neck band type fan according to another embodiment of the present invention.

[0046] As shown in the drawings, an angle adjusting part 40 may include at least one rotary bar 43 and joints 44 provided at both ends of the rotary bar 43. When the rotary bar 43 is provided in plural, the rotary bars 43 are connected to each other by the joints 44, and the rotary bars 43 may rotate around the joints 44. Here, axial directions of the joints 44 cross each other to be bent in different directions. Surfaces of the joints 44 which come into contact with each other may press each other so that the rotary bars 43 maintains a bent state.

[0047] FIG. 8 is an exemplary view illustrating a neck band type fan according to still another embodiment of the present invention.

[0048] As shown in the drawing, a Bluetooth module 50 is installed in the main body 10, and earphones 51 connected to the Bluetooth module 50 are provided on

both ends of the main body 10. Further, accommodation grooves 15 to which the earphones 51 are fixed may be formed in the body 10 so that the earphones 51 may be inserted into and kept in the accommodation grooves 15 when not in use.

[0049] FIGS. 9A and 9B are exemplary views illustrating a neck band type fan according to yet another embodiment of the present invention, and, as shown in the drawings, a shielding cover 60 configured to block introduction of hair is installed on a back surface of a head 20.

[0050] The shielding cover 60 is formed in a hemispheric shape and is formed larger than the head 20, and a plurality of spacers 61 which are in contact with the head 20 are formed in directions facing a center. Accordingly, the head 20 and the shielding cover 60 are installed to be spaced apart from each other at a predetermined interval to form a flow path 62. That is, external air is introduced into the back surface of the head 20 through the flow path 62 but the introduction of the hair is blocked.

Claims

1. A neck band type fan comprising:

- a main body (10) formed in a shape which surrounds the back of a neck and has both ends descending to a lower portion of the front of the neck when worn;
- a heads (20) provided on both ends of the main body (10) and having an inner space and a plurality of wind holes (21);
- a blade (30) installed in the head (20) and rotated by a motor to generate wind; and
- an angle adjusting part (40) provided between each end of the main body (10) and the head (20) to adjust the head (20) in directions facing a face.

2. The neck band type fan of claim 1, wherein the angle adjusting part (40) is formed of a soft pipe body (41) and has a plurality of iron cores (42) configured to maintain a bent or curved shape in the pipe body.

3. The neck band type fan of claim 1, wherein the angle adjusting parts (40) has a rotary bar (43) and joints (44) provided at both ends of the rotary bars (43) to connect the rotary bar (43), wherein axial directions of the joint (44) cross each other to be bent in different directions.

4. The neck band type fan of any one of claims 1 to 3, wherein:

- a Bluetooth module (50) is installed in the main body (10);
- an earphone (51) connected to the Bluetooth module (50) are provided on both ends of the

main body (10); and
an accommodation groove (15) to which the ear-
phone (51) can be fixed is formed in the body
(10) so that the earphone (51) may be inserted
into and kept in the accommodation groove (15) 5
when not in use.

5. The neck band type fan of any one of claims 1 to 3,
wherein:

10
a shielding cover (60) configured to block intro-
duction of hair is installed on a back surface of
the head (20), formed in a hemispheric shape,
and formed larger than the head (20); and
a plurality of spacers (61) which are in contact 15
with the head (20) are formed in directions facing
a center in the shielding cover to form a flow
path (62).

6. The neck band type fan of any one of claims 1 to 3, 20
wherein the head (20) is provided with a plurality of
lamps.

7. The neck band type fan of any one of claims 1 to 3,
wherein: 25

a space is formed in the main body (10);
a plurality of discharge holes (11) are formed in
the main body (10) in directions facing the neck;
and 30
a fan (14) rotated by a motor is installed in the
main body (10) so that wind is discharged
through the discharge holes (11).

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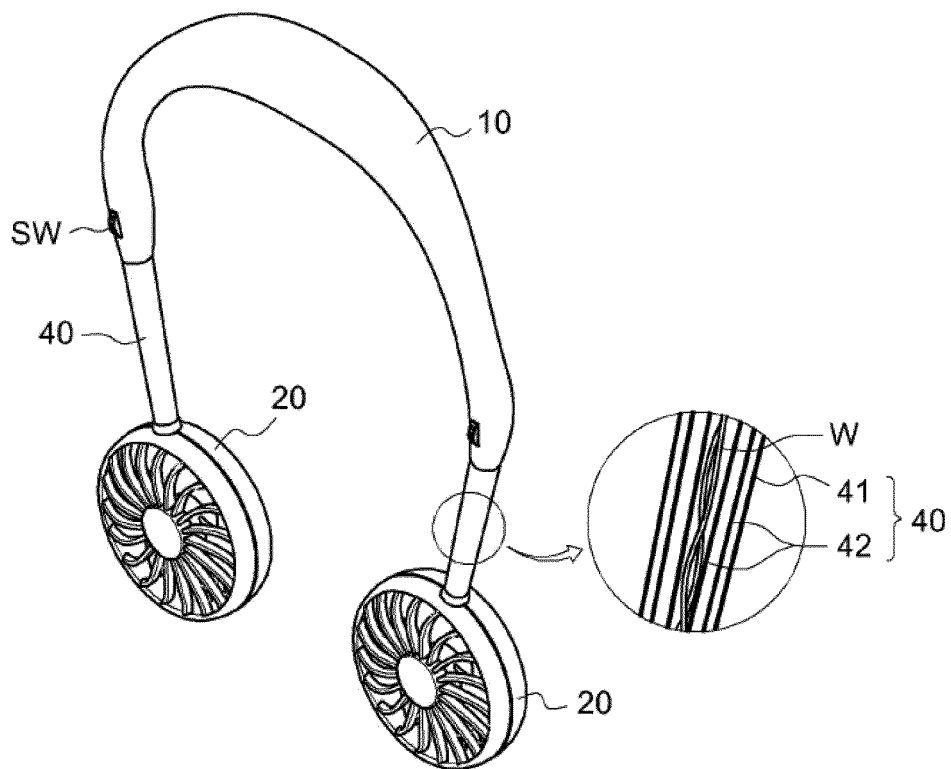
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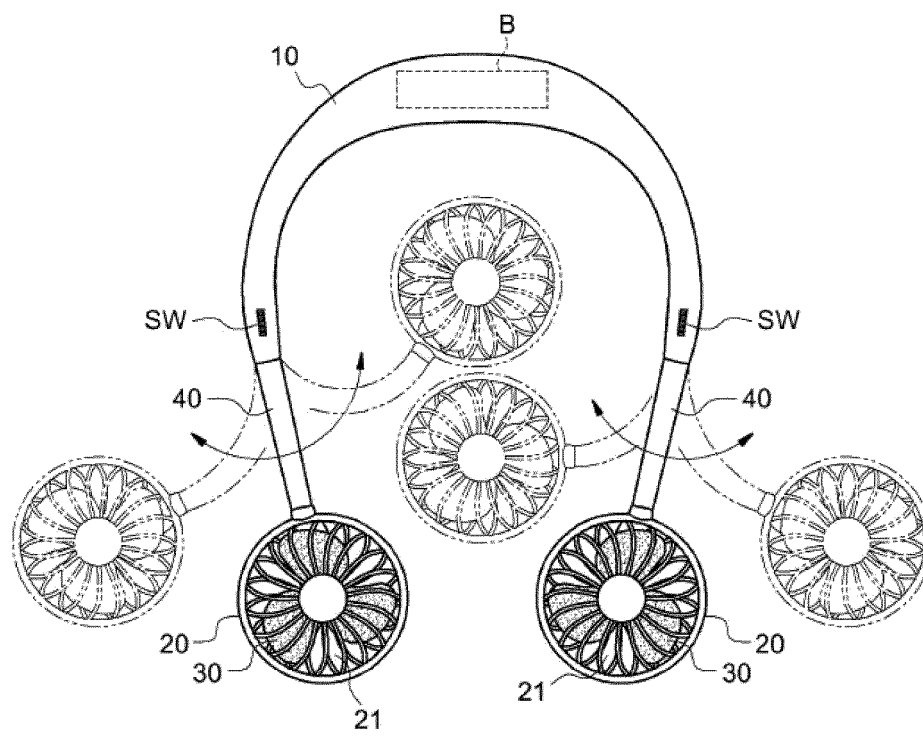
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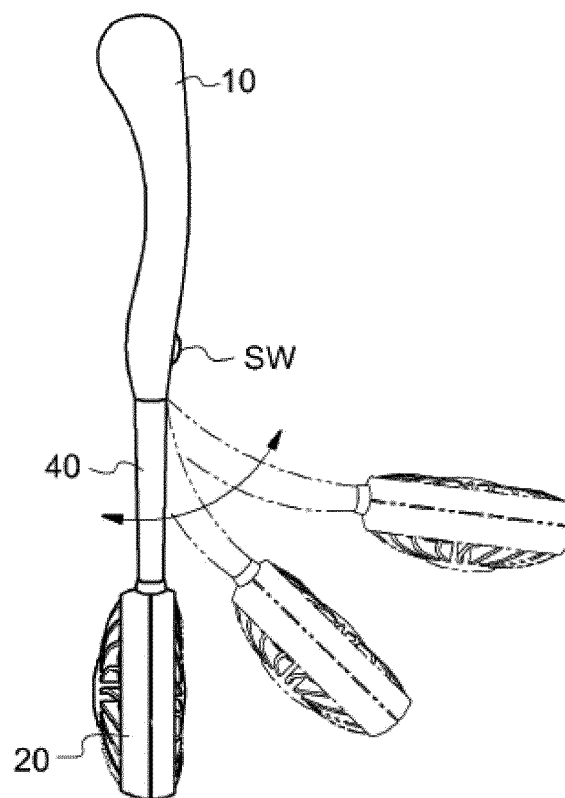
[FIG. 1]



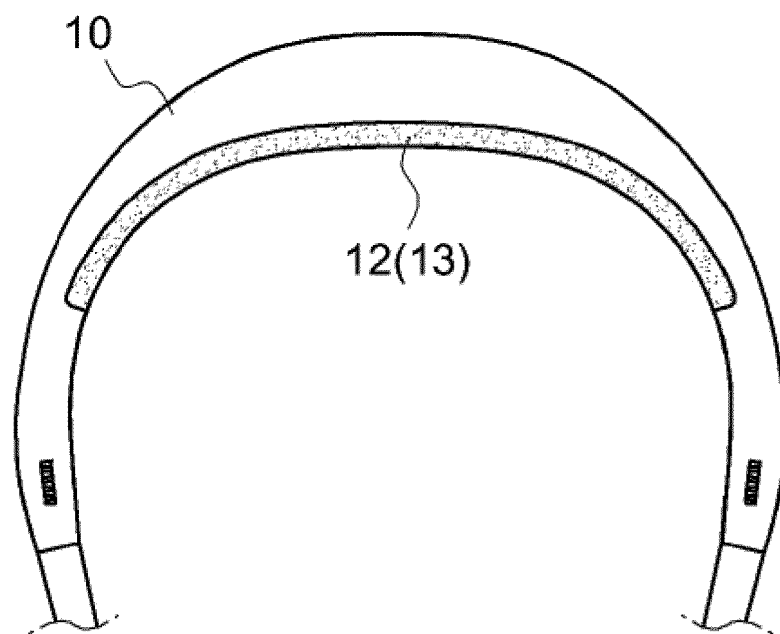
[FIG. 2]



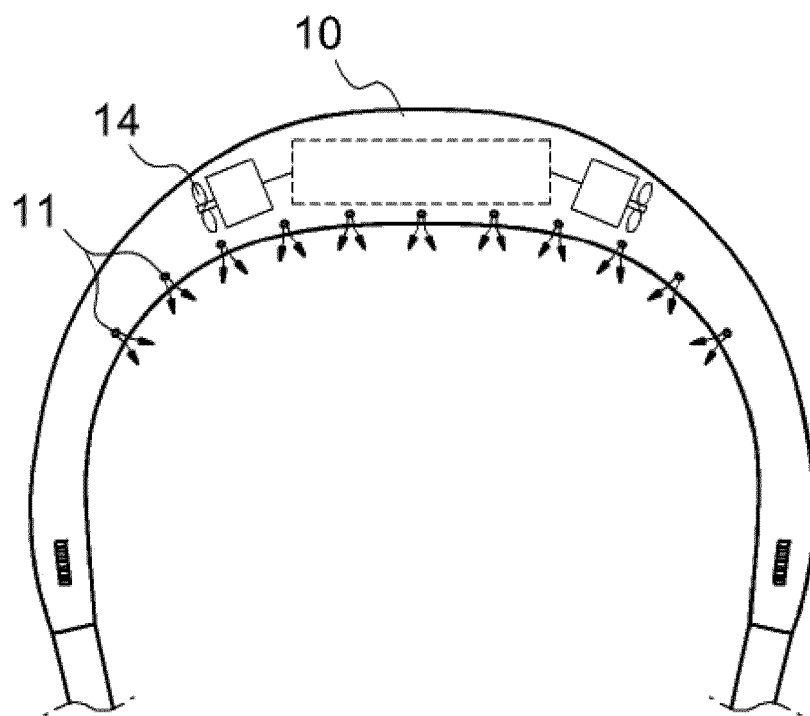
[FIG. 3]



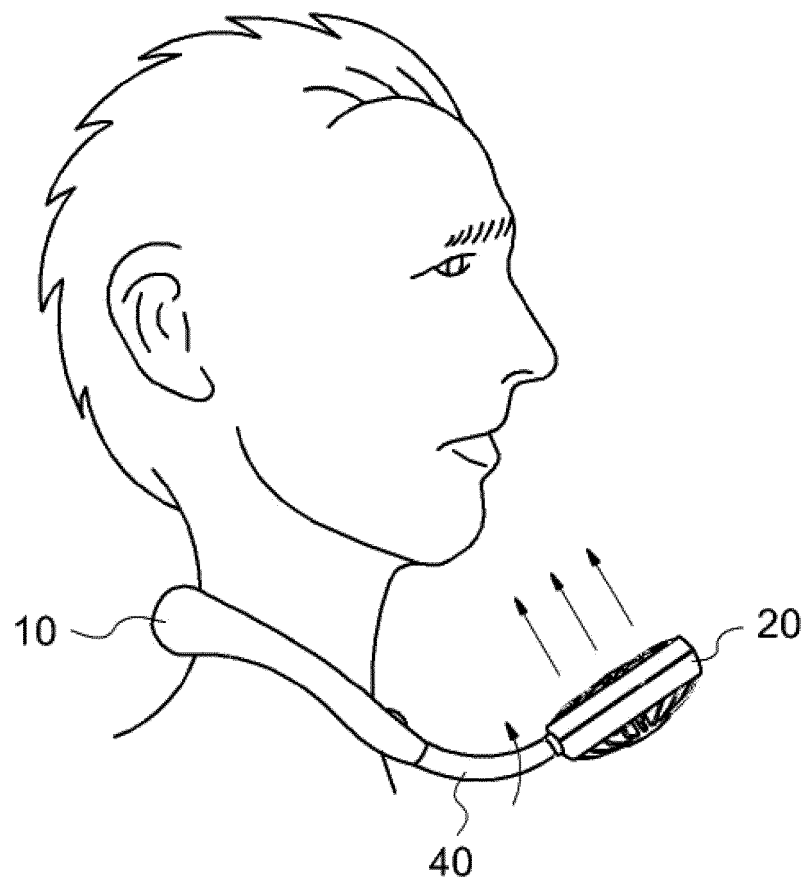
[FIG. 4]



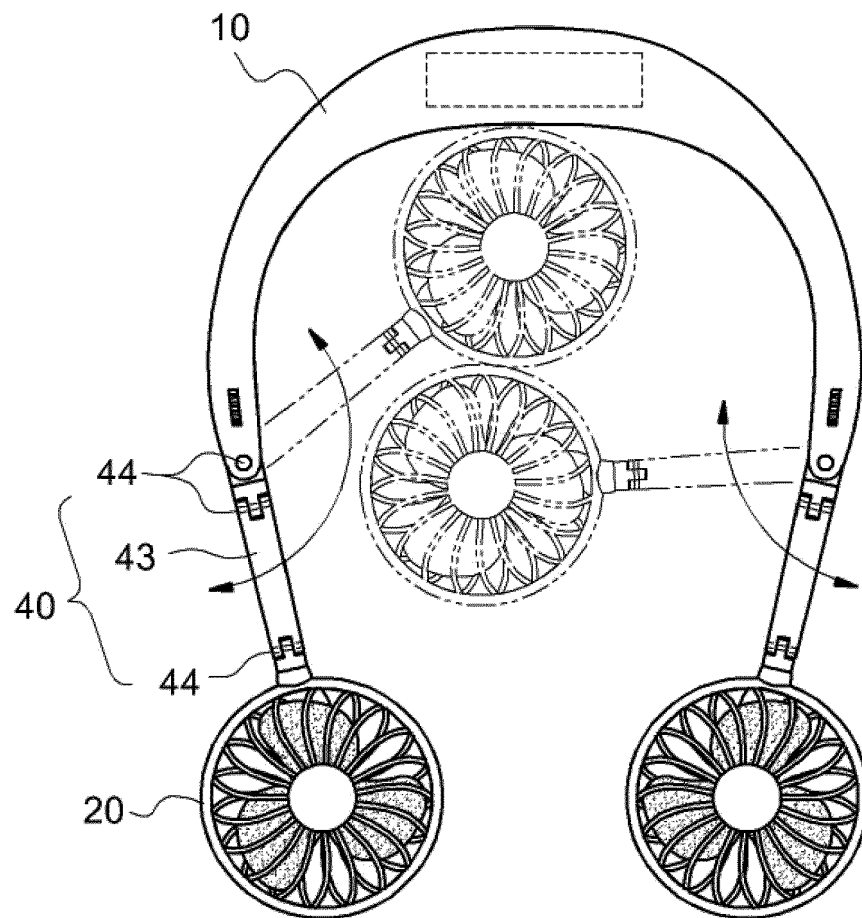
[FIG. 5]



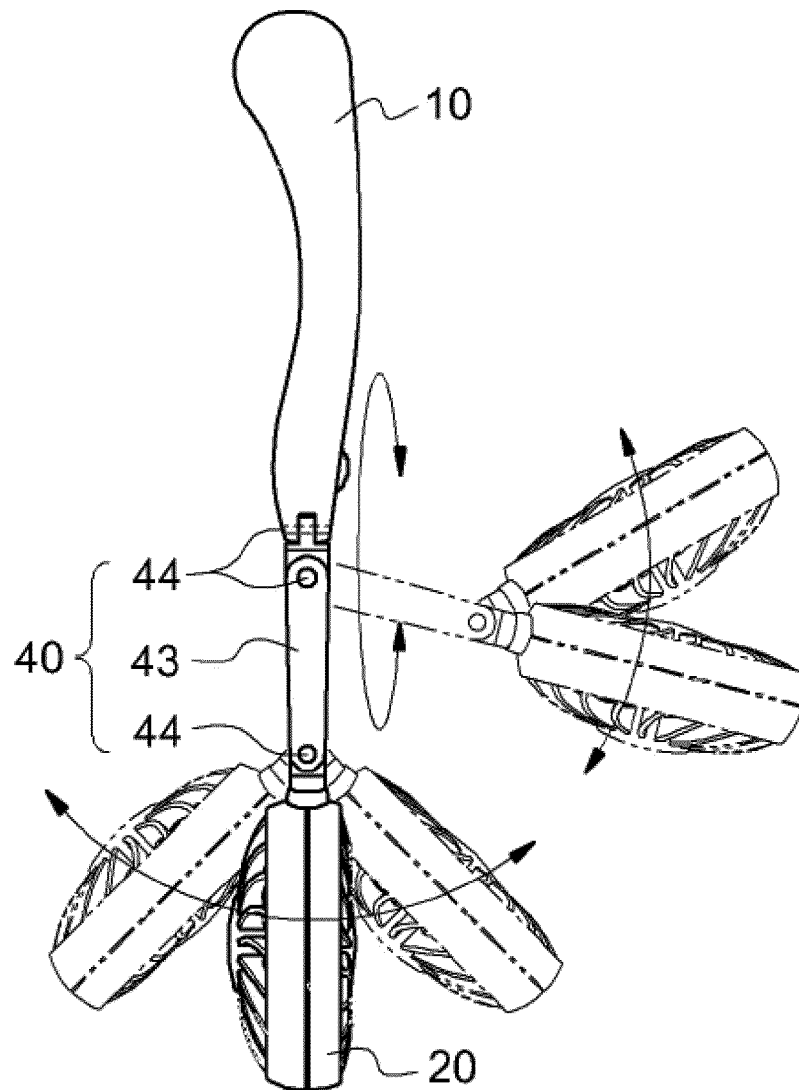
[FIG. 6]



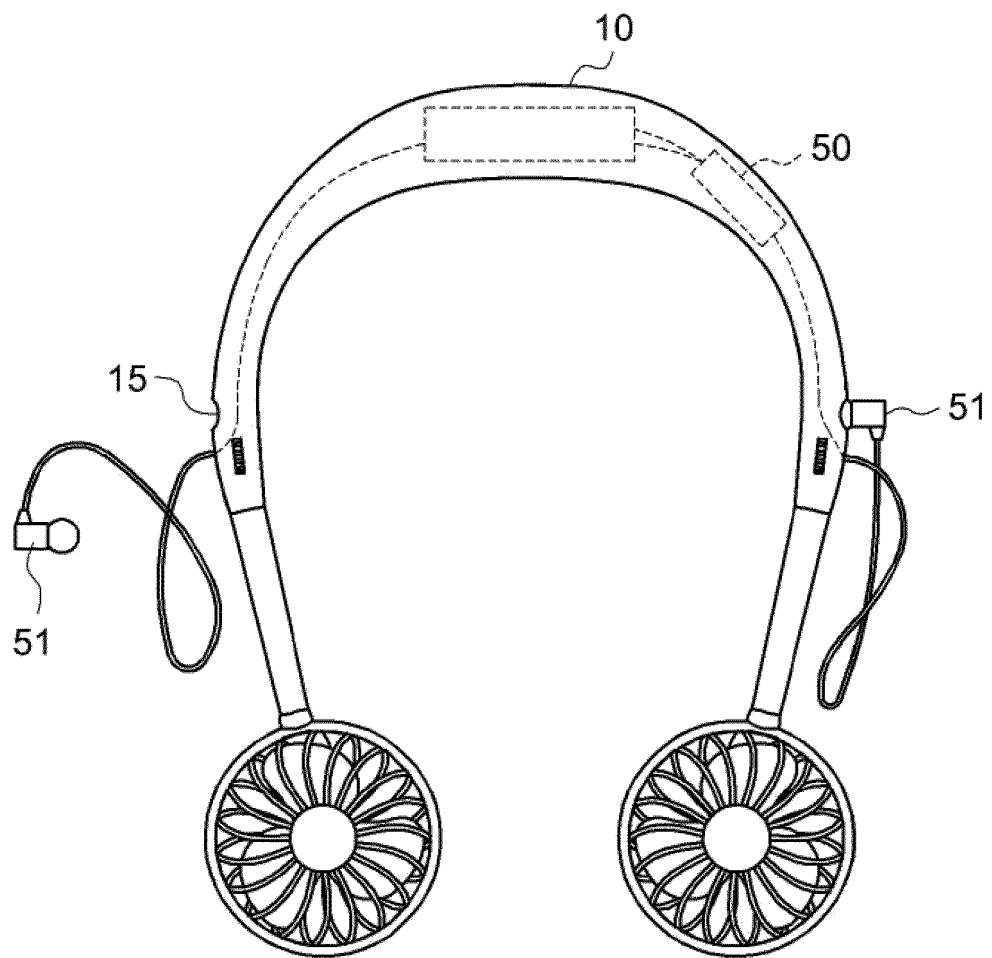
[FIG. 7A]



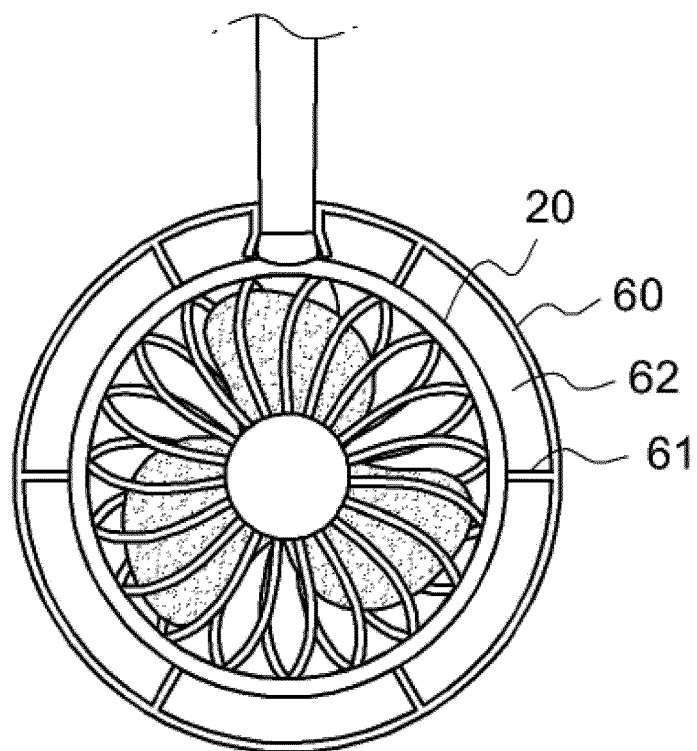
[FIG. 7B]



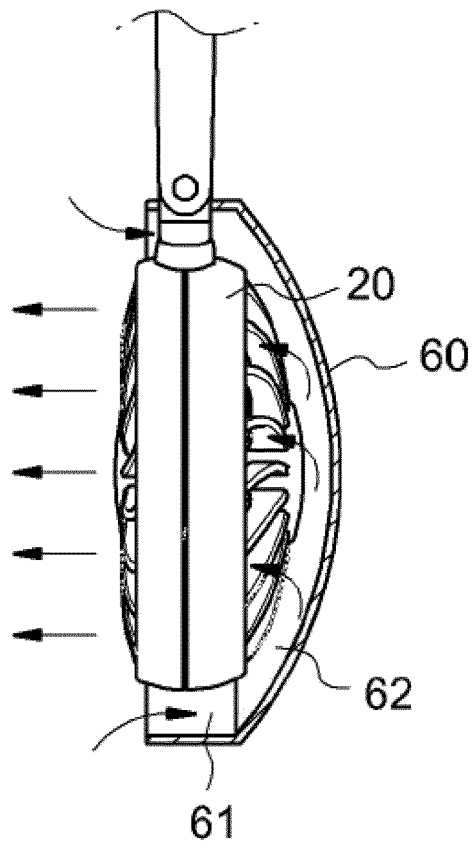
[FIG. 8]



[FIG. 9A]



[FIG. 9B]



INTERNATIONAL SEARCH REPORT

International application No.

PCT/KR2018/005934

A. CLASSIFICATION OF SUBJECT MATTER

F04D 25/10(2006.01)i, F04D 25/16(2006.01)i

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

F04D 25/10; F04D 29/52; F04D 25/08; F04D 25/16

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Korean Utility models and applications for Utility models: IPC as above

Japanese Utility models and applications for Utility models: IPC as above

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

eKOMPASS (KIPO internal) & Keywords: portable fan, neck band fan, angle control, bluetooth, cover and lamp

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 2016-114412 A1 (NOVEL INNOVATIONS INC.) 21 July 2016 See paragraphs [0035]-[0085] and figures 1-4.	1,7
Y		3-6
A		2
Y	CN 205316493 U (ZHOU, Yong) 15 June 2016 See paragraphs [0015]-[0022] and figures 1-2.	3,4
Y	KR 20-1990-0002669 Y1 (KIM, Young Gu) 31 March 1990 See page 1, line 29-page 2, line 6 and figures 1-2.	5
Y	CN 204942025 U (WANG, Baoquan) 06 January 2016 See paragraphs [0008], [0036] and figures 1a-3.	6
A	CN 105971917 A (XU, Chenfei) 28 September 2016 See paragraph [0021] and figures 1-3.	1-7
A	CN 202048007 U (DING, Qiaona) 23 November 2011 See paragraph [0008] and figure 1.	1-7

☐ Further documents are listed in the continuation of Box C.
 ☒ See patent family annex.

* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

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"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&" document member of the same patent family

Date of the actual completion of the international search

13 AUGUST 2018 (13.08.2018)

Date of mailing of the international search report

14 AUGUST 2018 (14.08.2018)

Name and mailing address of the ISA/KR



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Authorized officer

Telephone No.

INTERNATIONAL SEARCH REPORT
Information on patent family members

International application No.

PCT/KR2018/005934

Patent document cited in search report	Publication date	Patent family member	Publication date
WO 2016-114412 A1	21/07/2016	JP 2018-507987 A US 2017-0370596 A1	22/03/2018 28/12/2017
CN 205316493 U	15/06/2016	NONE	
KR 20-1990-0002669 Y1	31/03/1990	NONE	
CN 204942025 U	06/01/2016	NONE	
CN 105971917 A	28/09/2016	NONE	
CN 202048007 U	23/11/2011	NONE	

Form PCT/ISA/210 (patent family annex) (January 2015)

REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

- WO 101701828 A [0005]
- WO 2019990037235 A [0005]
- WO 200483235 A [0005]