

BUFFERING COVER FOR PREVENTING PAINS IN USING EARPHONES

Technical field

The present invention is related to a buffering cover to
5 improve adherence and to prevent pains when wearing earphones which
deliver sounds of various portable small-sized recorders, radios,
etc. by inserting them into earholes inside of earflaps for a long
time.

10 Background Art

Generally, circumference of the insertion portion of
earphones contacts external ear opening of earflaps when wearing
insert earphones (hereinafter referred to as 'earphones') by adhering
them to ears. Long-time use of earphones sometimes has caused
15 problems of feeling non-homogeneity due to continuous added pressure
and friction of the insertion portion, failure to cut off external
noise due to inferior adherence, and particularly, cause of pains by
stimulating nerves of inner earflaps. Further, repetitive long-time
uses of earphones have caused diseases including skin disease,
20 tympanitis, etc., and have led to hearing defect as these diseases
are transferred. There have been other damages coming from long-time
wearing of earphones.

In order to release a pain which is added to ears when wearing
earphones as described in the above, circumference of the insertion
25 portion of earphones is covered with foam sponge or rubber material.
However, effects of lightening pains have been insignificant for
conventional covers and their lives have been short dated due to
inherent characteristics and deformation of materials for the cover.

30 Disclosure of Invention

It is therefore an object of the present invention to resolve
problems of conventional buffering covers of earphones. The
ring-shaped cover of earphones made of a soft resin is equipped with
air rooms to double the buffering effect so that the cover envelops
35 around circumference of the insertion portion of earphones.



Brief Description of Drawings

The foregoing and other objects, aspects, and advantages will be better understood from the following detailed description of preferred embodiments of the invention with reference to the
5 drawings, in which:

Figure 1 is a separate perspective view showing how the present invention is used in the first embodiment of the invention:

Figure 2 is a cross-sectional view showing how the present invention is used in the first embodiment of the invention:

10 Figure 3 shows the second embodiment of the invention:

Figure 4a is a cross-sectional view of Figure 3:

Figure 4b is another cross-sectional view of Figure 3:

Figure 5 show the third embodiment of the invention; and

Figure 6 is a cross-sectional view of Figure 5.

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Best Mode for Carrying out the Invention

Referring now to the drawings, and more particularly to Figures 1 and 2, there are shown earphones in the present invention.

In forming the buffering cover 1 which is connected to the
20 circumference of the insertion portion 6 of earphones 5, the present invention is characterized by the fixing-in portion 4 which is grounded to the insertion portion 6, the connection portion 3 which is grounded to the inner earflaps, and the air room 2 which absorbs the pressure added to the fixing-in portion 4 and connection portion
25 3.

Illustrated below are the method of fixing the buffering cover 1 made of a highly elastic soft resin material into the circumference of the insertion portion 6 of one of earphones 5 and the operation of earphones when they are worn.

30 Firstly, one end of the above fixing-in portion 4 is grounded to the insertion portion 6 and is pressed by one hand, and another end of the fixing-in portion 4 is pulled by another hand to cover the insertion portion 6 of the earphone 5. It is natural that the diameter of the above buffering cover 1 is a little smaller than that
35 of the insertion portion 6 of the earphone 5 so that the fixing-in



portion 4 is closely adhered to the insertion portion 6 by inherent elasticity of the buffering cover 1. The connection portion 3 is grounded safely to the inner earflap if the buffering cover 1 is combined simply and then the earphone 5 is inserted into an earhole
5 as described in the above. The force imposed on the connection portion with the earphone 5 inserted into the inner earflap as the wearer moves around is absorbed and extinguished by buffering action of the air room 2, and therefore, direct stimulation or pain of the ear does not occur. Particularly, adherence by using the air room
10 does not generate non-homogeneity while wearing as the touch is very soft and adherence is tight, and further it is possible to maintain superior tone quality as external noises are cut off effectively. The cover in the present invention may be combined to the circumference of various-shaped insertion portions since the
15 buffering cover 1 is variable according to internal elasticity even for an earphone of which circumference of the insertion point is oval or arced.

Figures 3, 4a, and 4b are related to the second embodiment of the present invention. The air pocket 2a is formed radially around
20 the buffering cover 1 so that the air room 2 inside has a buffering characteristic when it is connected to the earhole.

Figures 5 and 6 show the third embodiment of the present invention. The round air tube 2c is fixedly attached to the insertion portion 6 of the earphone 5 so that the air room 2 has a buffering
25 property as the air room 2 is combined to the earhole roundly as a whole.

Also in case of the above second and third embodiments, the ear is not stimulated as the air pocket 2a and air tube 2c are grounded smoothly to the grounding portion of an earhole, and
30 high-quality hearing of earphone sound is enabled with external noises cut off since adherence is improved, if the buffer cover 1 is inserted and fixed into the insertion portion 6 of the earphone 5.

Industrial Applicability

35 As illustrated in the above, the present invention is very



practical and useful in that no non-homogeneity is felt although
earphones are worn for a long time since the air room formed in the
cover of the earphone softens the touch and improves adherence when
wearing; generation of diseases due to skin contact can be
5 effectively prevented since the cover in the present invention does
not stimulate earholes; and hearing of high-quality sounds is enabled
as noises delivered externally are cut off remarkably.

While the invention has been described in terms of a few
preferred embodiments, those skilled in the art will recognize that
10 the invention can be practiced with modification within the spirit
and scope of the appended claims.

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What Is Claimed Is

1. A buffering cover of an earphone for preventing pains in wearing which is connected to an earphone by means of a fixing-in portion and a connection portion, characterized by that an air room
5 is formed to said buffering cover to give a buffering effect.

2. A buffering cover of an earphone for preventing pains in wearing in claim 1, wherein said air room is formed radially in said buffering cover.

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3. A buffering cover of an earphone for preventing pains in wearing in claim 1, wherein said air room is formed in the form of a tube in said buffering cover.

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Fig 1

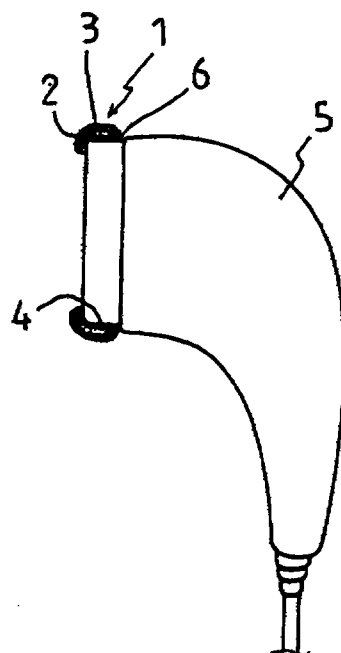


Fig 2

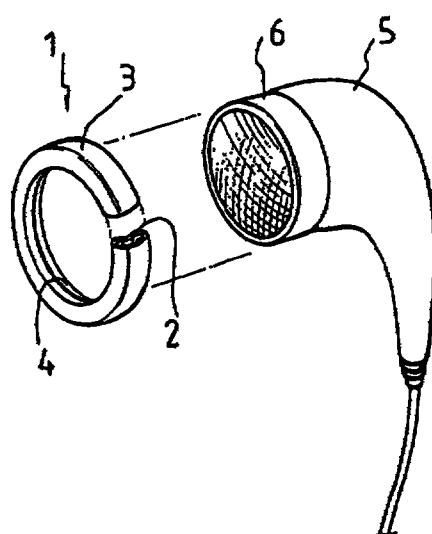


Fig 3

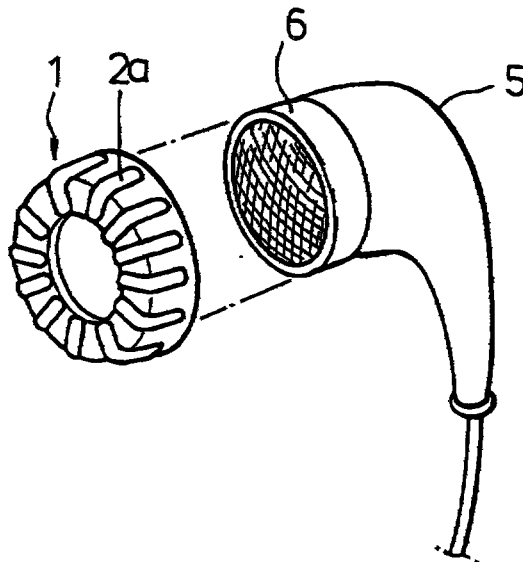


Fig 4a

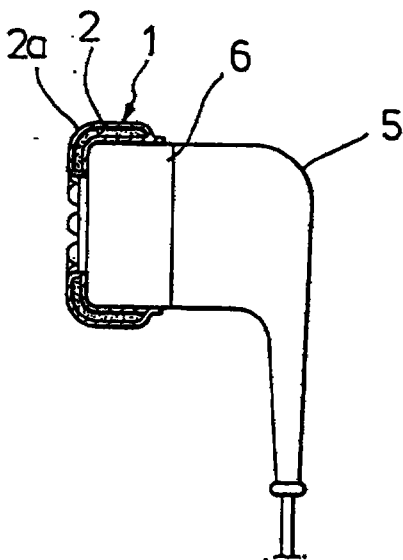


Fig 4b

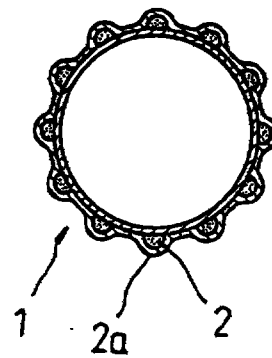


Fig 5

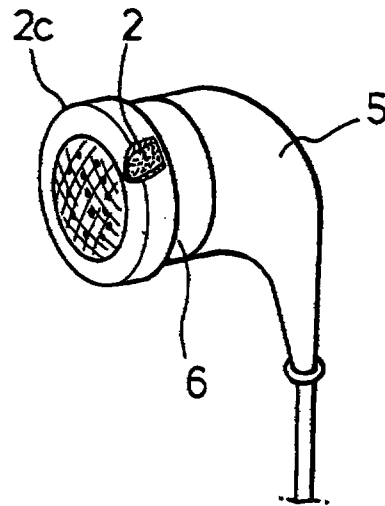
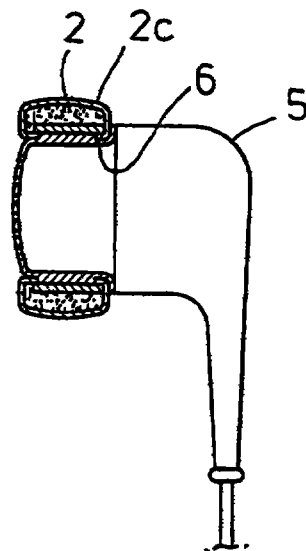


Fig 6



< NEW TITLE AND ABSTRACT > 1POS

(54) Title: CUSHION COVER FOR PREVENTING PAINS IN USING EARPHONES

(57) Abstract

5 The object of this invention is to provide a cushion cover for preventing
pains in using earphones of portable small-sized recorders, radios or the like. The
cushion cover (1) of this invention allows an earphone to stably, closely and
comfortably fit in the ear without giving pains to the ear when listening to the
recorders or radios by earphones for a lengthy period of time. This cushion cover
(1) consists of a fitting part (4), at which the cover (1) is fitted over the resonator
(6) of an earphone (5), and a tragus contact part (3), at which the cover (1) comes
into contact with the tragus of an ear, with an air chamber (2) formed on the cover
10 to absorb pressure applied to both the above-mentioned two parts (3) and (4), thus
allowing the earphone (5) to stably, closely and comfortably fit in the ear without
giving pains to the ear.

REPLACEMENT SHEET

20 DEC 2000

CUSHION COVER FOR PREVENTING PAINS IN USING EARPHONES

< NEW DESCRIPTION PGS. 1-6 >

Technical Field

5 The present invention relates, in general, to a cushion cover for earphones of portable small-sized recorders, radios or the like and, more particularly, to a cushion cover designed to allow such an earphone to stably, closely and comfortably fit in the ear without giving pains to the ear when listening to the recorders or radios by earphones for a lengthy period of time.

Background Art

10 When a naked earphone without having any additional cushion cover fits in an ear to listen to a recorder or a radio, the hard resonator of the earphone is seated in the concha of the ear while being brought into frictional contact with the tragus. When such a naked earphone fits in the ear for a lengthy period of time, the resonator gradually pressurizes the tragus to finally give pains to the ear and make the ear feel heterogeneity, tensioned and stressed. In addition, the naked
15 earphone does not come into close contact with the tragus, but leaves a gap between the resonator and the tragus, thus allowing undesired noises to be introduced into the acoustic meatus of the ear. In such a case, the earphone fails to function as an effective sound receiver.

20 Furthermore, in the case of a repeated fitting of such a naked earphone in the ear, the hard resonator stimulates the nerves of the tragus and gives pains to the ear and may cause a variety of diseases, such as cutaneous diseases or tympanitis, and may finally cause a hearing loss.

25 In an effort to relieve such tension, stress or pains of the ear when an earphone fits in the ear, a cushion cover, made of foamed sponge or soft rubber, may be fitted over the resonator of the earphone. However, such conventional cushion covers for earphones are inferior in their operational effect for relieving pains due to limited characteristics of their materials. In addition, the

conventional cushion covers are easily deformed, and so the covers are usable only for a short period of time.

Disclosure of the Invention

Accordingly, the present invention has been made keeping in mind the
5 above problems occurring in the prior art, and an object of the present invention is to provide a cushion cover for preventing pains in using earphones, which has an annular-shaped body made of a high elastic soft plastic material and fitted over the resonator of an earphone and provided with an air chamber capable of absorbing pressure, thus allowing a user to feel soft and comfortable at the ear while listening
10 to a recorder or a radio by the earphone, and which closely fits in the ear, thus allowing the user to be free from feeling heterogeneity at the ear, and which does not stimulate the nerves of the tragus, thereby being less likely to give pains to the ear or cause a variety of diseases, such as cutaneous diseases or tympanitis.

In order to accomplish the above object, the present invention provides a
15 cushion cover for preventing pains in using an earphone, comprising an annular fitting part closely fitted over the circumferential surface of an earphone's resonator, a tragus contact part integrated with the annular fitting part and brought into close contact with the tragus of an ear when the earphone fits in the ear, and an air chamber defined by both the fitting part and the tragus contact part and used for
20 absorbing pressure applied to both the fitting part and the tragus contact part to accomplish a desired pressure absorbing effect when the earphone fits in the ear.

Brief Description of the Drawings

The above and other objects, features and other advantages of the present invention will be more clearly understood from the following detailed description
25 taken in conjunction with the accompanying drawings, in which:

Fig. 1 is a sectional view of a cushion cover in accordance with the primary embodiment of the present invention, when the cushion cover is

completely fitted over the resonator of an earphone;

Fig. 2 is a perspective view of the cushion cover of Fig. 1, when the cushion cover is separated from the earphone;

5 Fig. 3 is a perspective view of a cushion cover in accordance with the second embodiment of the present invention, when the cushion cover is separated from an earphone;

Fig. 4a is a sectional view of the cushion cover of Fig. 3, when the cushion cover is completely fitted over the resonator of the earphone;

10 Fig. 4b is a sectional view, showing the cross-section of the cushion cover of Fig. 3;

Fig. 5 is a perspective view of a cushion cover in accordance with the third embodiment of the present invention, when the cushion cover is completely fitted over the resonator of an earphone; and

Fig. 6 is a sectional view of the cushion cover of Fig. 5.

15 Best Mode for Carrying Out the Invention

Reference now should be made to the drawings, in which the same reference numerals are used throughout the different drawings to designate the same or similar components.

20 Fig. 1 is a sectional view of a cushion cover in accordance with the primary embodiment of the present invention, when the cushion cover is completely fitted over the resonator of an earphone. Fig. 2 is a perspective view of the cushion cover of Fig. 1, when the cushion cover is separated from the earphone. As shown in the drawings, the cushion cover 1 of this invention is fitted over the circumferential surface of the resonator 6 of an earphone 5.

25 That is, the cushion cover 1 of the invention comprises an annular fitting part 4, at which the cover 1 is closely fitted over the circumferential surface of the earphone's resonator 6. A tragus contact part 3 is integrated with the annular fitting part 4 and is brought into close contact with the tragus of an ear when the earphone 5 fits in the ear. An air chamber 2 is defined by both the fitting part 4

and the tragus contact part 3 and is used for absorbing pressure applied to both the fitting part 4 and the tragus contact part 3 to accomplish a desired pressure absorbing effect when the earphone 5 fits in the ear.

5 When it is desired to fit the cushion cover 1 over the resonator 6 of the earphone 5, the cushion cover 1, made of a high elastic soft plastic material, is primarily caught by the resonator 6 at one portion of the annular fitting part 4 and is forcibly fitted over the resonator 6 at the other portion while finger-holding the primarily caught portion of the fitting part 4 until the cover 1 is entirely fitted over the resonator 6.

10 In the preferred embodiments of this invention, the cushion cover 1 has an inner diameter slightly smaller than the outer diameter of the resonator 6, and so the cushion cover 1 is elastically and closely fitted over the resonator 6 at the annular fitting part 4 due to elasticity of the high elastic soft plastic material of the cover 1.

15 After the cushion cover 1 is completely fitted over the resonator 6 of the earphone 5 as described above, the earphone 5 fits in the ear to listen to a recorder or radio. In such a case, the earphone 5 is stably, closely and comfortably seated in the concha of the ear at the tragus contact part 3 of the cushion cover 1.

20 When the earphone 5, covered with the cushion cover 1, fits in the ear as described above, pressure applied from the cushion cover 1 to the tragus of the ear is effectively absorbed by the air chamber 2, and so the cushion cover 1 is almost completely free from stimulating, pressurizing, tensioning or stressing the tragus while keeping the close and stable position of the earphone 5 in the concha for a desired lengthy period of time.

25 Due to the air chamber 2 provided in the cushion cover 1 of this invention, it is possible for a user to feel soft and comfortable at the ear while listening to a recorder or a radio by the earphone 5. The cushion cover 1 having the air chamber 2 also allows the earphone 5 to closely and comfortably fit in the ear, and so the user is less likely to feel heterogeneity due to the earphone 5 at the ear.

30 The cushion cover 1 does not leave a gap between the resonator 6 and the tragus of the ear, thus preventing an introduction of undesired noises into the acoustic

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meatus of the ear. This finally makes the earphone 5 function as an effective sound receiver.

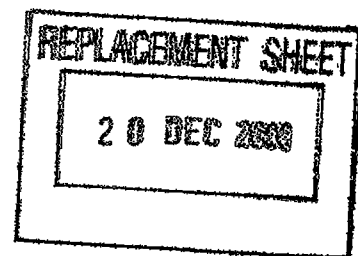
5 The cushion cover 1 of this invention has high elasticity and is flexible in its shape, and so the cover 1 may be somewhat freely used with a variety of conventional earphones regardless of the profiles of their resonators, thus having a desired compatibility. That is, the elastic cushion cover 1 of this invention may be preferably used with earphones having oval-shaped or arc-shaped resonators in addition to earphones having circular-shaped resonators.

10 Figs. 3, 4a and 4b show a cushion cover for earphones in accordance with the second embodiment of the present invention. In the cushion cover 1 according to the second embodiment, a plurality of radial air pockets 2a are regularly formed on the annular fitting part of the cover 1, with the air chamber 2 being formed by the air pockets 2a.

15 Figs. 5 and 6 show a cushion cover for earphones in accordance with the third embodiment of this invention. In the cushion cover 1 according to the third embodiment, an annular air tube 2c is formed along the annular fitting part of the cover 1, with the air chamber 2 being formed by the annular air tube 2c.

20 When an earphone 5, of which the resonator 6 is covered with a cushion cover 1 according to any one of the second and third embodiments of this invention, fits in an ear to listen to a recorder or a radio, it is possible for a user to feel soft and comfortable at the ear due to the radial air pockets 2b in the case of the second embodiment or the air tube 2c in the case of the third embodiment. The cushion cover 1 does not stimulate the nerves of the tragus of the ear, but allows the earphone 5 to closely and comfortably fit in the ear. Therefore, the cushion cover 1 according to the second or third embodiment does not leave a gap
25 between the resonator 6 and the tragus of the ear. This prevents an introduction of undesired noises into the acoustic meatus of the ear and finally makes the earphone 5 function as an effective sound receiver.

Industrial Applicability



As described above, the present invention provides a cushion cover for preventing pains in using earphones. This cushion cover has an annular-shaped body made of a high elastic soft plastic material and fitted over the resonator of an earphone and provided with an air chamber capable of absorbing pressure, thus
5 allowing a user to feel soft and comfortable at the ear while listening to a recorder or a radio by the earphone. The earphone, covered with the cushion cover of this invention, closely fits in the ear, thereby allowing the user to be free from feeling heterogeneity due to the earphone at the ear. Due to the cushion cover, the earphone does not stimulate the nerves of the tragus, thereby being less likely to
10 give pains to the ear or cause a variety of diseases, such as cutaneous diseases or tympanitis. The cushion cover does not leave a gap between the resonator of the earphone and the tragus, thus preventing an introduction of undesired noises into the acoustic meatus of the ear and finally making the earphone function as an effective sound receiver.

15 Although the preferred embodiments of the present invention have been disclosed for illustrative purposes, those skilled in the art will appreciate that various modifications, additions and substitutions are possible, without departing from the scope and spirit of the invention as disclosed in the accompanying claims.

Claims

1. (New Claim) A cushion cover for preventing pains in using an earphone, comprising:

5 an annular fitting part closely fitted over a circumferential surface of an earphone's resonator;

a tragus contact part integrated with said annular fitting part and brought into close contact with a tragus when the earphone fits in an ear; and

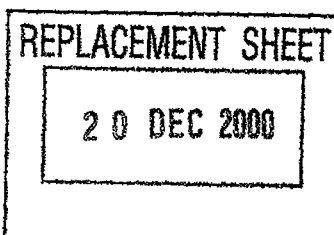
10 an air chamber defined by both said fitting part and said tragus contact part, said air chamber absorbing pressure applied to both the fitting part and the tragus contact part to accomplish a pressure absorbing effect when the earphone fits in the ear.

2. (New Claim) The cushion cover according to claim 1, wherein said air chamber is formed by a plurality of radial air pockets regularly formed on said annular fitting part.

15 3. (New Claim) The cushion cover according to claim 1, wherein said air chamber is formed by an annular air tube formed along said annular fitting part.



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(54) Title: BUFFERING COVER FOR PREVENTING PAINS IN USING EARPHONES

✓ changed.

(57) Abstract

The present invention is related to a buffering cover to improve adherence and to prevent pains when wearing earphones which deliver sounds of various portable small-sized recorders, radios, etc. by inserting them into earholes inside of earflaps for a long time. The buffering cover which covers the circumference of the insertion portion of earphones in the present invention is composed of the fixing-in portion which is grounded to the above insertion portion, the connection portion which is grounded to the inner earflaps, and the air room which absorbs the pressure added to the fixing-in portion and connection portion in order to soften adherence to earholes.

