

CLAIM[Document name] Specification

[Name of the invention] AIR CONDITIONING CLOTHING

[Technical field]

[0001]

The present invention relates to an air-conditioning an inner space existing between a and air-conditioning clothing when the wearer is wearing the air-conditioning clothing.

[Background technology]

[0002]

Conventionally, air-conditioning clothing equipped with an electric air-conditioning fan unit has been known (Patent Document 1). The air-conditioning fan unit is operated to draw outside air into the clothing body to cool the body. Such air-conditioning clothing can suppress the rise in body temperature of workers (wearers) who work indoors or outdoors in high-temperature environments, and is also effective as a measure against heatstroke in the summer.

[0003]

Here, as a prior art, for example, as shown in Patent Document 1, there is an air-conditioning clothing that includes: a clothing body that covers the wearer; a fan for introducing outside air; a cover member for preventing foreign matter intrusion that is removably attached to the clothing body to which the fan is attached so as to cover the fan from the outside. The cover member includes a filter for preventing foreign matter intrusion made of a wire mesh, and a frame member that covers the peripheral edge of the filter. The clothing body includes a pocket along the outer surface of the

clothing body, into which the cover member is removably stored.

[0004]

According to the related art, air-conditioning clothing that can suppress the intrusion of foreign substances such as dust and is more convenient to use is provided.

[0005]

However, the air-conditioning clothing in the prior art described above is not intended to efficiently guide the airflow flowing between the air-conditioning clothing and the wearer's back to the back of the wearer's head. The above prior art is not intended to disclose that the collar portion of the air-conditioning clothing has sufficient height to efficiently guide the airflow to the back of the wearer's head and has sufficient strength to prevent deformation due to the airflow.

[0006]

As mentioned above, in the above-mentioned conventional technology air-conditioning clothing, there is a problem in that it is not possible to efficiently guide the airflow to the back of the wearer's head while ensuring a desired airflow passage between the air-conditioning clothing and the wearer's back.

[Prior art]

[Patent document]

[0007]

[Patent Document 1] JP 6715891 B

[Outline of the Invention]

[Means for solving the problem]

[0008]

An air-conditioning closing, according to an embodiment of the present invention, for air-conditioning an inner space that exists between a wearer and the air-conditioning clothing that is worn by the wearer, comprising:

- a clothing body that configured to be worn by the wearer, wherein the clothing body includes a front portion located anteriorly to face the wearer's chest and abdomen, and a rear portion located posteriorly to face the wearer's back, in a state worn by the wearer;

- a first attaching portion provided at the rear portion of the clothing body and having a first air-conditioning hole passing through between the inner and outer surfaces of the clothing body; wherein the first attaching portion is removable with a first temperature adjustment device that takes outside air into the air-conditioning clothing through the first air-conditioning hole,

- a second attaching portion provided at the rear portion of the clothing body and having a second air-conditioning hole penetrating between the inner and outer surfaces of the clothing body; wherein the first attaching portion is removably attached to a second temperature adjustment device that takes outside air into the air-conditioning clothing through the second air-conditioning hole; and

- a collar portion provided at the upper end of the clothing body, wherein the collar portion extends upward and covers at least the back of the wearer's head above the wearer's neck when the air-conditioning clothing is worn by the wearer,

wherein, when the air-conditioning clothing is air-conditioned, an airflow passage is formed through which outside air taken into the clothing body flows through the first air conditioning hole and the second air conditioning hole,

in the airflow passage, the outside air passes through and flows through a rear air-conditioned space that exists between the rear portion of the clothing body and the back of the wearer, towards between the inner surface of the collar portion and the back of the wearer's head above the wearer's neck, and

wherein the collar portion has a shape that covers at least the rear of the wearer's head.

[0009]

In the air-conditioning clothing, wherein, in order to maintain the shape, the collar portion is partially or entirely provided with a reinforcing member.

[0010]

In the air-conditioning clothing, wherein the reinforcing member is a reinforcing cloth or an interlining.

[0011]

In the air-conditioning clothing, wherein the collar portion is continuously provided from the upper end of the rear portion of the clothing body to the upper end of the front portion of the clothing body.

[0012]

In the air-conditioning clothing, wherein a height of the collar portion gradually decreases from a portion of the collar portion facing a temporal portion of the wearer toward anteriorly.

[0013]

In the air-conditioning clothing, wherein a height of the collar portion gradually decreases toward anteriorly, above the upper end of the front portion of the clothing body.

[0014]

In the air-conditioning clothing,

wherein an expanded planar shape of the collar portion is symmetrical in the lateral direction of the collar portion,

wherein a height from the lower end to the upper end of a central portion in the horizontal direction of the collar portion is the highest, and

wherein a height from the lower end to the upper end of both ends of the collar portion in the horizontal direction is the lowest.

[0015]

In the air-conditioning clothing,

wherein an upper end of a planar shape obtained by expanding the collar portion is convex, and

wherein a lower end of a planar shape obtained by expanding the collar portion is concave.

[0016]

In the air-conditioning clothing,

wherein the collar portion comprises;

a first fabric forming an inner surface of the collar portion;

a second fabric forming an outer surface of the collar portion;

an inner core member that is fixed to at least one of the

first fabric and the second fabric and constitutes the reinforcing member,

wherein the upper end of the clothing body is sandwiched and fixed between a lower end of the first fabric and a lower end of the second fabric, thereby connecting the upper end of the clothing body and the lower end of the collar portion.

[0017]

In the air-conditioning clothing, wherein the collar portion further includes a storage section provided in the first fabric on an inner surface of the collar portion.

[0018]

In the air-conditioning clothing,

wherein, in a state where a first folded portion, obtained by folding back an upper end of the first fabric so as to sandwich an upper end of the inner core member, and a second folded portion, obtained by folding back an upper end of the second fabric, are pasted together,

the first folded portion and the second folded portion are continuously sewn together with the upper end of the inner core member at a first seam along the upper edge of the collar portion, from the inner surface to the outer surface of the collar portion, and

wherein, in a state where a third folded portion obtained by folding back a lower end of the first fabric so as to sandwich an lower end of the inner core member, and a fourth folded portion obtained by folding back an lower end of the second fabric, are stuck together,

the third folded portion and the fourth folded portion are

continuously sewn together with the lower end of the inner core member and the upper end of the clothing body at a second seam along the lower end of the collar portion, from the inner surface to the outer surface of the collar portion.

[0019]

In the air-conditioning clothing,

wherein an end portion of the first fabric at the first folded portion and an end portion of the second fabric at the second folded portion are sewn together continuously at a third seam, the third seam is located along the first seam and closer to the upper end of the collar portion than the first seam, and

wherein the end portion of the first fabric at the third folded portion and the end portion of the second fabric at the fourth folded portion are sewn together continuously at a fourth seam, the fourth seam is located along the second seam and closer to the lower end of the collar portion than the second seam.

[0020]

In the air-conditioning clothing, wherein the collar portion is configured to fold along the upper end of the clothing body such that the upper portion of the collar portion overlaps at least a portion of the lower portion of the collar portion.

[0021]

In the air-conditioning clothing,

wherein the collar portion further includes a reinforcing core member that is harder than the first fabric and the second fabric, the reinforcing core member is provided between the first fabric and the second fabric, and the reinforcing core member

extends in a lateral direction centered on a center portion of the collar portion facing the back of the wearer's head above the wearer's neck.

[0022]

In the air-conditioning clothing, wherein a position of an upper end of the reinforcing core member is the same as a position of the upper end of the storage portion.

[0023]

In the air-conditioning clothing,
wherein the collar portion is bent such that the outer surface of the upper portion of the collar portion overlaps the outer surface of the lower portion of the collar portion, with a line passing through the upper end of the reinforcing core member as the border.

[0024]

In the air-conditioning clothing, further comprising:
a ventilation space adjustment portion provided on the inner surface of the rear portion of the clothing body, so that the collar portion is located between the upper end of the rear portion of the clothing body to which the collar portion is connected and the attachment area where the first attaching portion and the second attaching portion are located,

wherein the ventilation space adjustment portion adjusts the shape of the rear air-conditioned space during the air conditioning, by adjusting the shape of the rear portion of the clothing body by adjusting the distance between the first adjustment portion and the second adjustment portion on the inner surface of the rear portion of the clothing body.

[0025]

In the air-conditioning clothing,
wherein the first adjustment portion is located to the right of the center line of the rear portion of the clothing body,
wherein the second adjustment portion is located to the left of the center line of the rear portion of the clothing body,
and
wherein the first adjustment portion and the second adjustment portion are arranged side by side in the lateral direction of the clothing body.

[0026]

In the air-conditioning clothing,
wherein the ventilation space adjustment portion includes an adjustment string having:
a first end connected to the first adjustment portion of the rear inner surface of the clothing body; and
a second end connected to the second adjustment portion on the inner surface of the rear portion of the clothing body,
and
wherein the ventilation space adjustment portion adjusts the shape of the rear air-conditioned space by adjusting the length between the first end and the second end of the adjustment string.

[0027]

In the air-conditioning clothing, wherein the length of the adjustment string before being adjusted is longer than the width of the reinforcing core member.

[0028]

In the air-conditioning clothing, wherein the ventilation space adjustment portion is located closer to the collar portion than the attachment area.

[0029]

In the air-conditioning clothing,

wherein the rear air-conditioned space includes a region surrounded by the adjusted adjustment string and the inner surface of the rear portion of the air-conditioning clothing, and

wherein the airflow passage passes through at least an area surrounded by the adjusted adjustment string and the inner surface of the rear portion of the air-conditioning clothing, and passes through at least an area between the reinforcing core member and the back of the wearer's head.

[0030]

In the air-conditioning clothing, wherein the length of the adjustment string before being adjusted is longer than the width of the storage section.

[0031]

In the air-conditioning clothing,

wherein the rear air-conditioned space includes a region surrounded by the adjusted adjustment string and the inner surface of the rear portion of the air-conditioning clothing, and

wherein the airflow passage passes through at least an area surrounded by the adjusted adjustment string and the inner surface of the rear portion of the air-conditioning clothing, and also passes through at least an area between the storage section and the back of the wearer's head.

[0032]

In the air-conditioning clothing,
wherein the adjustment string has a plurality of adjustment holes formed therein, and
wherein the adjustment string includes an engaging portion that engages with any one of the plurality of adjustment holes.

[0033]

In the air-conditioning clothing, wherein, in the vertical direction of the air-conditioning clothing, a height from the lower end to the upper end of the storage portion is less than half a height from the lower end to the upper end of the central portion of the collar portion.

[0034]

In the air-conditioning clothing, further comprising:
a first temperature adjustment device attached to the first attaching portion; and
a second temperature adjustment device attached to the second attaching portion.

[0035]

In the air-conditioning clothing,
wherein a first heat generating device that generates heat using electric power supplied from a power source is removably attached to the first attaching portion, in a state where the first temperature adjustment device is removed, and
wherein a second heat generating device that generates heat using electric power supplied from the power source is removably attached to the second attaching portion, in a state where the second temperature adjustment device is removed.

[0036]

In the air-conditioning clothing, wherein the air-conditioning clothing is a vest or a blouson.

[0037]

In the air-conditioning clothing, wherein the first temperature adjustment device is a first fan, and the second temperature adjustment device is a second fan.

[Effect of the invention]

[0038]

That is, according to the air-conditioning clothing of an embodiment of the present invention, it is possible to secure the desired airflow passage between the air-conditioning clothing and the back of the wearer, and the airflow can be efficiently guided to the back of the wearer's head.

[Brief explanation of the drawing]

[0039]

[FIG. 1A] FIG. 1A is a schematic diagram showing an example of the appearance of air-conditioning clothing 100 according to an embodiment of the present invention as viewed from the front.

[FIG. 1B] FIG. 1B is a schematic diagram showing an example of the appearance of air-conditioning clothing 100 according to an embodiment of the present invention as viewed from the rear.

[FIG. 2] FIG. 2 is a schematic diagram showing an example of the configuration of the inner surface 10Yin and collar portion 20 of the rear portion 10Y of the clothing body 10 of the air-conditioning clothing 100 when viewed from the inside.

[FIG. 3A] FIG. 3A is a cross-sectional view showing an example of a cross section focusing on region Z in FIG. 2, including the

upper portion of the rear portion 10Y of the clothing body of the air-conditioning clothing 100 and the collar portion 20.

[FIG. 3B] FIG. 3B is a diagram showing an example of the planar shape of the collar portion 20 of the air-conditioning clothing 100.

[FIG. 4] FIG. 4 is a diagram showing an example of the external appearance of the air-conditioning clothing 100 with the first and second temperature adjustment devices FC1 and FC2 attached, as viewed from the rear.

[FIG. 5] FIG. 5 is a diagram showing an example of the configuration of the inner surface 10Yin and collar portion 20 of the rear portion 10Y of the clothing body 10 of the air-conditioning clothing 100, with the first and second temperature adjustment devices FC1 and FC2 attached, viewed from the inside.

[FIG. 6] FIG. 6 is a diagram showing a first modified example of the planar shape of the expanded collar portion 20 of the air-conditioning clothing 100.

[FIG. 7] FIG. 7 is a diagram showing a second modification of the planar shape of the collar portion 20 of the air-conditioning clothing 100.

[FIG. 8] FIG. 8 is a cross-sectional view showing a third modification of the cross-section focusing on region Z in FIG. 2, including the upper portion of the rear portion 10Y of the clothing body of the air-conditioning clothing 100 and the collar portion 20.

[Mode for carrying out the invention]

[0040]

Hereinafter, embodiments according to the present invention will be described based on the drawings.

[0041]

First, an air-conditioning clothing according to an embodiment will be described with reference to the drawings. FIG. 1A is a schematic diagram showing an example of the appearance of air-conditioning clothing 100 according to an embodiment of the present invention as viewed from the front. FIG. 1B is a schematic diagram showing an example of the appearance of air-conditioning clothing 100 according to an embodiment of the present invention as viewed from the rear. FIG. 2 is a schematic diagram showing an example of the configuration of the inner surface 10Yin and collar portion 20 of the rear portion 10Y of the clothing body 10 of the air-conditioning clothing 100 when viewed from the inside. FIG. 3A is a cross-sectional view showing an example of a cross section focusing on region Z in FIG. 2, including the upper portion of the rear portion 10Y of the clothing body of the air-conditioning clothing 100 and the collar portion 20. FIG. 3B is a diagram showing an example of the planar shape of the collar portion 20 of the air-conditioning clothing 100. FIG. 4 is a diagram showing an example of the external appearance of the air-conditioning clothing 100 with the first and second temperature adjustment devices FC1 and FC2 attached, as viewed from the rear. FIG. 5 is a diagram showing an example of the configuration of the inner surface 10Yin and collar portion 20 of the rear portion 10Y of the clothing body 10 of the air-conditioning clothing 100, with the first and second temperature

adjustment devices FC1 and FC2 attached, viewed from the inside.

[0042]

It is noted that the cross section of the collar portion 20 in FIG. 3A corresponds to the cross section of the collar portion 20 in FIG. 3B along line A-A.

[0043]

[air-conditioning clothing]

The air-conditioning clothing 100 according to the embodiment shown in FIGS. 1A and 1B is, for example, work clothing for air-conditioning the inner space existing between the wearer (not shown) and the wearer when the wearer wears the clothing.

[0044]

This air-conditioning clothing 100 is, for example, a vest (work clothes without sleeves), as shown in FIGS. 1A and 1B. However, the air-conditioning clothing 100 may be long-sleeved or short-sleeved work clothing such as blouson etc.

[0045]

For example, as shown in FIGS. 1A to 5, this air-conditioning clothing 100 includes a clothing body 10, a first attaching portion T1, a second attaching portion T2, a power supply storage portion P2 for, a storage portion P1, a ventilation space adjustment portion 50, and a collar portion 20.

[0046]

In addition, in FIGS. 2 to 5, for simplicity, a part of the configuration of the air-conditioning clothing 100 shown in FIGS. 1A and 1B may be omitted from the display.

[0047]

Hereinafter, each component of the air-conditioning clothing 100 will be explained in detail.

[0048]

[Clothing body]

The clothing body 10 can be worn by the wearer. In particular, this clothing body 10 can be worn on the wearer's upper body.

[0049]

This clothing body 10 includes: a front portion 10X (FIG. 1A) located in front of the air-conditioning clothing 100 (the front portion 10X is located anteriorly to face the wearer's chest and abdomen) and covering at least the vicinity of the chest of the wearer when worn by the wearer; and a rear portion 10Y (FIG. 1B) located at the rear of the air-conditioning clothing 100 (the rear portion 10Y is located posteriorly to face the wearer's back) and covering at least the vicinity of the wearer's back.

[0050]

Furthermore, the front portion 10X of the clothing body 10 can be closed by closing the zipper G (FIG. 1A).

[0051]

Additionally, this clothing body 10 includes openings 10L, 10R, 10U, and 10D corresponding to the wearer's shoulders, torso, and neck, respectively.

[0052]

Furthermore, the front portion 10X of the clothing body 10 is provided with a storage portion (a storage portion for power supply) P2 and a storage portion P1, which are pockets,

for example.

[0053]

[First and second attaching portions]

For example, as shown in FIGS. 1B to 3B, the first attaching portion T1 is provided at the rear portion 10Y of the clothing body 10, and the first attaching portion T1 has a first air conditioning hole T1A that penetrates between the inner surface 10Yin and the outer surface 10Yout of the rear portion 10Y of the clothing body 10.

[0054]

This first attaching portion T1 is capable of attaching and detaching an first fan, which is a temperature adjustment device that takes outside air into the air-conditioning clothing 100 through the first air-conditioning hole T1A. It is noted that the first fan is an electric fan.

[0055]

In addition, as shown in FIGS. 4 and 5, the air-conditioning clothing 100 may further include the first temperature adjustment device (first fan) FC1 attached to the first attaching portion T1.

[0056]

On the other hand, for example, the first attaching portion T1 may be configured such that a first heat generating device (not shown) that generates heat using electric power supplied from a power source can be attached and detached, when the first temperature adjustment device FC1 is removed.

[0057]

In addition, the second attaching portion T2 is provided at

the rear portion 10Y of the clothing body 10, for example, as shown in FIGS. 1B to 3B, and the second attaching portion T2 has a second air conditioning hole T2A that penetrates between the inner surface 10Yin and the outer surface 10Yout of the rear portion 10Y of the clothing body 10.

[0058]

This second attaching portion T2 is capable of attaching and detaching an second fan, which is a temperature adjustment device that takes outside air into the air-conditioning clothing 100 through the second air-conditioning hole T2A. As mentioned above, the second fan is an electric fan.

[0059]

It is noted that, as shown in FIGS. 4 and 5, the air-conditioning clothing 100 may further include a second temperature adjustment device (the second fan) FC2 attached to the second attaching portion T2.

[0060]

On the other hand, the second attaching portion T2 may be such that a second heat generating device (not shown), that generates heat using electric power supplied from the power source, can be attached and detached when the second temperature adjustment device FC2 is detached.

[0061]

In addition, in the examples of Figures 1B to 3B, the first attaching portion T1 and the second attaching portion T2 are arranged in the torso region of the rear portion 10Y of the clothing body 10 facing the back side of the torso of the wearer

when the air-conditioning clothing 100 is worn by the wearer. However, the first attaching portion T1 and the second attaching portion T2 may be arranged in other regions of the clothing body 10.

[0062]

[Ventilation space adjustment portion]

Also, for example, as shown in FIGS. 2 and 5, the ventilation space adjustment portion 50 is provided on the inner surface 10Yin of the rear portion 10Y of the clothing body 10, so that the ventilation space adjustment portion 50 is located between the upper end 10YE, of the rear portion 10Y of the clothing body 10 to which the collar portion 20 is connected, and the attachment area T. where the first attachment portion T1 and the second attachment portion T2 are located.

[0063]

In particular, for example, as shown in FIGS. 2 and 5, the ventilation space adjustment portion 50 is arranged closer to the collar portion 20 than to the attachment region T.

[0064]

This ventilation space adjustment portion 50 is designed to adjust the shape of the rear portion 10Y of the clothing body 10 to adjust the shape of the rear air-conditioned space (the space between the wearer's back side and the inner surface 10Yin of the rear portion 10Y of the clothing body 10) during air conditioning (FIGS. 4 and 5), by adjusting the distance between the first adjustment portion 10Ya and the second adjustment portion 10Yb of the inner surface 10Yin of the rear portion 10Y of the clothing body 10.

[0065]

For example, as shown in Figures 2 and 5, the first adjustment portion 10Ya is located to the right of the center line of the rear portion 10Y of the clothing body 10, and the second adjustment portion 10Yb is located to the left of the center line of the rear portion 10Y of the clothing body 10. The first adjustment portion 10Ya and the second adjustment portion 10Yb are arranged side by side in the lateral direction of the clothing body 10.

[0066]

More specifically, the ventilation space portion adjustment 50 includes an adjustment string 50H, as shown in FIGS. 2 and 5, for example.

[0067]

The adjustment string 50H includes: a first end 50a connected to a first adjustment portion 10Ya of the inner surface 10Yin of the rear portion 10Y of the clothing body 10; a second end 50b connected to the second adjustment portion 10Yb of the inner surface 10Yin of the rear portion 10Y of the clothing body 10.

[0068]

Furthermore, a plurality of adjustment holes 50c1, 50c2, and 50c3 are formed in the adjustment string 50H. The adjustment string 50H includes an engaging portion (engaging button) 50d that engages with any one of the plural adjustment holes 50c1, 50c2, and 50c3.

[0069]

For example, in the ventilation space adjustment portion

50, the length between the first end 50a and the second end 50b of the adjustment string 50H is adjusted, by engaging any one of the plural adjustment holes 50c1, 50c2, and 50c3 with the engaging portion 50d.

[0070]

In this way, by adjusting the length between the first end 50a and the second end 50b of the adjustment string 50H, the distance between the first adjustment portion 10Ya and the second adjustment portion 10Yb is adjusted.

[0071]

For example, in a state in which the length of the adjustment string 50H is not adjusted (that is, in a state in which any one of the plural adjustment holes 50c1, 50c2, and 50c3 is not engaged with the engaging portion 50d), the length between the first end 50a and the second end 50b of the adjustment string 50H is the same as the distance between the first adjustment portion 10Ya and the second adjustment portion 10Yb of the inner surface 10Yin of the rear portion 10Y of the clothing body 10.

[0072]

Therefore, in this state (the state shown in FIGS. 2 and 5), the adjustment string 50H is in contact with the inner surface 10Yin of the rear portion 10Y of the clothing body 10.

[0073]

On the other hand, in a state in which the length of the adjustment string 50H is adjusted (that is, in a state in which any one of the plural adjustment holes 50c1, 50c2, and 50c3 is engaged with the engaging portion 50d), the length between the

first end 50a and the second end 50b of the adjustment string 50H is shorter than the distance between the first adjustment portion 10Ya and the second adjustment portion 10Yb of the inner surface 10Yin of the rear portion 10Y of the clothing body 10.

[0074]

Therefore, in this state, the inner surface 10Yin of the rear portion 10Y of the clothing body 10 is bent so that the first adjustment portion 10Ya and the second adjustment portion 10Yb of the inner surface 10Yin become closer, during air conditioning (FIGS. 4 and 5), a desired region through which airflow passes is formed between the inner surface 10Yin of the rear portion 10Y of the clothing body 10 and the adjustment string 50H.

[0075]

That is, the ventilation space adjustment portion 50 is adapted to adjust the shape of the rear air-conditioned space between the wearer's back side and the inner surface 10Yin of the rear portion 10Y of the clothing body 10, by adjusting the length between the first end 50a and the second end 50b of the adjustment string 50H.

[0076]

In this way, the rear air-conditioned space includes a region surrounded by the adjusted adjustment string 50 and the inner surface 10Yin of the rear portion 10Y of the air-conditioning clothing 100. For example, the airflow passage Q passes through at least a region surrounded by the adjusted adjustment string 50 and the inner surface 10Yin of the rear

portion 10Y of the air-conditioning clothing 100.

[0077]

[collar portion]

For example, as shown in FIGS. 1A, 1B, 2, and 3A, the collar portion 20 is provided (connected) to the upper ends 10XE and 10YE of the clothing body 10. The collar portion 20 is configured to cover at least the rear of the back of the head above the wearer's neck when worn by the wearer, and extend upward.

[0078]

More specifically, for example, as shown in FIGS. 1A to 5, this collar portion 20 is continuously provided from the upper end 10YE of the rear portion 10Y of the clothing body 10 to the upper end 10XE of the front portion 10X of the clothing body 10.

[0079]

In particular, for example, as shown in FIG. 1A, the height of the collar portion 20 gradually decreases from the part facing the temporal portion of the wearer toward anteriorly (the collar portion 20 should be lower than at least the center of the back of the head). In other words, for example, as shown in FIG. 1A, the height of the collar portion 20 gradually decreases toward anteriorly, above the upper end 10XE of the front portion 10X of the clothing body 10.

[0080]

Therefore, it is possible to prevent the collar portion 20 from blocking sounds and voices around the wearer.

[0081]

It is noted that, for example, as shown in FIG. 3B, the expanded planar shape of the collar portion 20 is symmetrical in the lateral direction of the collar portion 20.

[0082]

The height from the lower end to the upper end of the central portion of the collar portion 20 in the lateral direction is the highest. The height from the lower end to the upper end of both ends of the collar portion 20 in the lateral direction is the lowest (that is, the upper end and the lower end intersect at both ends of the collar portion 20 in the lateral direction).

[0083]

More specifically, for example, as shown in FIG. 3B, the upper end of the expanded planar shape of the collar portion 20 is convex. Furthermore, the lower end of the planar shape of the expanded collar portion 20 is concave. Therefore, in the state where the collar portion 20 is sewn to the upper ends 10XE and 10YE of the clothing body 10, as the clothing body 10 spreads outward, this allows airflow to escape easily and prevents it from blocking the wearer's head and ears.

[0084]

It is noted that this collar, the collar portion 20, is composed of one piece of fabric (one part) on one side when unfolded as shown in FIG. 3B. However, for example, the collar portion 20 may be divided near the middle in the vertical direction on one unfolded side shown in FIG. 3B and sewn together with two pieces of fabric (two parts). Furthermore, the collar portion 20 may be divided into a plurality of parts in the vertical and horizontal directions and sewn together with a

plurality of pieces of fabric (a plurality of parts).

[0085]

Then, as shown FIGS. 4 and 5, when air-conditioning clothing 100 is air-conditioned, an airflow passage Q is formed through which the outside air flows. The outside air taken into the clothing body 10 through the first and second air-conditioning holes T1A and T2A flows, via the rear air-conditioned space existing between the rear portion 10Y of the clothing body 10 and the back of the wearer, toward the space between the inner surface 20in of the collar portion 20 and the neck of the wearer located above.

[0086]

For example, as shown in FIG. 3A, this collar portion 20 has a shape that covers at least the back of the back of the head above the wearer's neck, in order to maintain the shape of this collar portion 20, a reinforcing member 20Z is provided partially or entirely in the collar portion 20. This reinforcing member 20Z is, for example, reinforcing cloth or interlining.

[0087]

Thereby, the shape retention of the collar portion 20 of the air-conditioning clothing 100 can be improved, and the airflow passage Q from the back and above of the back of the wearer's head can be prevented from being crushed.

[0088]

It is noted that, for example, the maximum height of this collar portion 20 from the connection portion (the lower end of the collar portion 20) with the clothing body 10 to the upper end of the collar portion 20 is, for example, 13 cm or more.

[0089]

In this way, by increasing the height of the collar portion 20 of the air-conditioning clothing 100, airflow can be more reliably sent to the back of the wearer's neck and around his face.

[0090]

Here, as mentioned above, in order to cover the area around the wearer's neck and the back of the head above the neck when worn by the wearer, the collar portion 20 needs to have the desired strength so that the collar portion 20 retains its shape without being deformed by airflow.

[0091]

Therefore, the collar portion 20 is composed of a plurality of members including a reinforcing member 20Z to maintain the shape of the collar portion 20.

[0092]

More specifically, for example, as shown in FIG. 3A, the collar portion 20 includes a first fabric 20a, a second fabric 20b, and an inner core member 20Z.

[0093]

The first fabric 20a constitutes 20_{in} of the inner surface of the collar portion 20.

[0094]

Furthermore, the second fabric 20b constitutes the outer surface 20_{out} of the collar portion 20.

[0095]

In addition, the inner core member 20Z is fixed to at least one of the first fabric 20a and the second fabric 20b, and

constitutes the previously described reinforcing member 20Z.

[0096]

In particular, for example, as shown in FIG. 3A, by fixing the upper ends 10XE and YE of the clothing body 10 so as to be sandwiched between the lower ends of the first cloth 20a and the lower ends of the second cloth 20b, the upper ends 10XE, 10YE of the clothing body 10 and the lower end of the front collar portion 20 are connected.

[0097]

As a result, the boundary between the clothing body 10 and the collar portion 20 is made harder than when two pieces of fabric are sewn together. That is, in order to hold the collar portion 20 in an upright state, the boundary portion is made hard.

[0098]

In particular, for example, as shown in FIG. 3A, in a state where a first folded part D1, which is the upper end of the first fabric 20a folded back so as to sandwich the upper end of the inner core member 20Z, and a second folded part D2, which is the upper edge of the second fabric 20b folded back, are bonded together. In this state, the first folded part D1 and the second folded part D2 are continuously sewn together with the upper end of the inner core member 20Z at the first seam N1 along the upper end of the collar portion 20, from the inner surface 20in of collar portion 20 to the outer surface 20out.

[0099]

Furthermore, the end portion of the first fabric 20a at the first folded portion D1 and the end portion of the second fabric

20a at the second folded portion D2 are continuously sewn together at the third seam N3. The third seam N3 is located along the first seam N1 and closer to the upper end 20E of the collar portion 20 than the first seam N1.

[0100]

On the other hand, for example, as shown in FIG. 3A, in a state where the third folded part D3, which is the lower part of the first fabric 20a folded back so as to sandwich the lower end of the inner core member 20Z, and the fourth folded part D4, which is the lower edge of the second fabric 20b folded back, are pasted together. In the state, the third folded portion D3 and the fourth folded portion D4 are sewn together with the lower end of the inner core member 20Z and the upper end 10YE (10XE) of the clothing body 10, continuously at the second seam N2 along the lower edge of the collar portion 20, from the inner surface 20in to the outer surface 20out of the collar portion 20.

[0101]

Furthermore, the end portion of the first fabric 20a at the third folded portion D3 and the end portion of the second fabric 20a at the fourth folded portion D4 are continuously sewn together at a fourth seam N4. The fourth seam N4 is located along the second seam N2 and closer to the lower end of the collar portion 20 than the second seam N2.

[0102]

Here, as already mentioned, for example, as shown in FIGS. 2 and 5, the ventilation space adjustment portion 50 is arranged closer to the collar portion 20 than the attachment

region T.

[0103]

Furthermore, as mentioned above, in a state in which the length of the adjustment string 50H is adjusted (that is, in a state in which any one of the plural adjustment holes 50c1, 50c2, and 50c3 is engaged with the engaging portion 50d), the length between the first end 50a and the second end 50b of the adjustment string 50H is shorter than the distance between the first adjustment portion 10Ya and the second adjustment portion 10Yb of the inner surface 10Yin of the rear portion 10Y of the clothing body 10.

[0104]

As a result, the inner surface 10Yin of the rear portion 10Y of the clothing body 10 is bent. Therefore, during air conditioning (FIGS. 4 and 5), between the wearer's back and the inner surface 10Yin of the rear portion 10Y of the clothing body 10, a desired area is created through which the airflow passes. At least between the inner surface 10Yin of the rear portion 10Y of the clothing body 10 and the adjustment string 50H.

[0105]

It is noted that, for example, the collar portion 20 is bent along the upper ends 10XE, 10YE of the clothing body 10 so that the upper portion 20E of the collar portion 20 overlaps at least a part of the lower portion 20G of the collar portion 20. This makes it possible to cope with cases where, for example, the wearer does not want to use the collar portion 20 in an upright position.

[0106]

[Function of air-conditioning clothing]

Here, an example of the function of the air-conditioning clothing 100 of this embodiment having the above configuration will be described.

[0107]

Furthermore, as mentioned above, in a state in which the length of the adjustment string 50H is adjusted (that is, in a state in which any one of the plural adjustment holes 50c1, 50c2, and 50c3 is engaged with the engaging portion 50d), the length between the first end 50a and the second end 50b of the adjustment string 50H is shorter than the distance between the first adjustment portion 10Ya and the second adjustment portion 10Yb of the inner surface 10Yin of the rear portion 10Y of the clothing body 10.

[0108]

As a result, the inner surface 10Yin of the rear portion 10Y of the clothing body 10 is bent. Therefore, during air conditioning (FIGS. 4 and 5), between the wearer's back and the inner surface 10Yin of the rear portion 10Y of the clothing body 10, a desired area is created through which the airflow passes. At least between the inner surface 10Yin of the rear portion 10Y of the clothing body 10 and the adjustment string 50H.

[0109]

On the other hand, the collar portion 20 is composed of a plurality of members including a reinforcing member 20Z to maintain its shape. Additionally, the boundary between the clothing body 10 and the collar portion 20 is configured to be harder than the surrounding area.

[0110]

Then, by adjusting the length between the first end 50a and the second end 50b of the adjustment string 50H of the ventilation space adjustment portion 50, even when adjusting the shape of the rear air-conditioned space between the back side of the wearer and the inner surface 10Yin of the rear portion 10Y of the clothing body 10, since the shape retention of the collar portion 20 of the air-conditioning clothing 100 is further improved within the width 40H of the reinforcing core member 40, the airflow passage from behind the back of the wearer's head to above is more securely prevented from collapsing.

[0111]

In this way, a continuous airflow passage Q is formed from the rear air-conditioned space of the air-conditioning clothing 100 to the back of the wearer's head, during air conditioning, the shape of the collar portion 20 that is at least the height of the back of the wearer's head above the neck is maintained to more reliably guide airflow from the wearer's back to the back of the wearer's head.

[0112]

That is, according to the air-conditioning clothing of this example, it is possible to secure the desired airflow passage between the air-conditioning clothing and the back of the wearer, and the airflow can be efficiently guided to the back of the wearer's head.

[0113]

(Modified example)

In the embodiments described above, an example of the configuration of the clothing body 10 and collar portion 20 of the air-conditioning clothing 100 has been described. In particular, in FIGS. 3A and 3B, a more specific configuration of the collar portion 20 has been described.

[0114]

However, the configuration of the collar portion 20 is not limited to the configuration shown in FIGS. 3A and 3B.

[0115]

Therefore, here, three modified examples that are other configuration examples of the collar portion 20 will be described. It is noted that the other configuration of the air-conditioning clothing according to this modification is the same as the configuration of the air-conditioning clothing 100 of the previously described embodiment.

[0116]

Here, FIG. 6 is a diagram showing a first modification of the planar shape of the collar portion 20 of the air-conditioning clothing 100.

[0117]

For example, as shown in this FIG. 6, the collar portion 20 may further include a reinforcing core member 40 that is harder than the first fabric 20a and the second fabric 20b. The reinforcing core member 40 is provided between the first fabric 20a and the second fabric 20b, so as to extend laterally around the central portion 200 of the collar portion 20 facing the back side of the back of the head above the wearer's neck.

[0118]

For example, the length of the adjustment string 50H (FIG. 2) of the ventilation space adjustment portion 50 before adjustment is set to be longer than the width 40H of the reinforcing core member 40.

[0119]

In the example shown in FIG. 6, the collar portion 20 is bent such that the outer surface of the upper portion 20E of the collar portion 20 overlaps the outer surface of the lower portion 20G of the collar portion 20, with the line L passing through the upper end 40E of the reinforcing core member 40 as the border.

[0120]

Furthermore, in the example shown in FIG. 6, the rear air-conditioned space includes a region surrounded by the adjusted adjustment string 50 and the inner surface 10Yin of the rear portion 10Y of the air-conditioning clothing 100. The airflow passage Q passes through at least an area surrounded by the adjusted adjustment string 50H and the inner surface 10Yin of the rear portion 10Y of the air-conditioning clothing 100, and the airflow passage Q passes through at least a region between the reinforcing core member 40 and the back of the wearer's head.

[0121]

Then, by adjusting the length between the first end 50a and the second end 50b of the adjustment string 50H of the ventilation space adjustment portion 50, even when adjusting the shape of the rear air-conditioned space between the back side of the wearer and the inner surface 10Yin of the rear portion 10Y of the clothing body 10, since the shape retention of

the collar portion 20 of the air-conditioning clothing 100 is further improved within the width 40H of the reinforcing core member 40, the airflow passage from behind the back of the wearer's head to above is more securely prevented from collapsing.

[0122]

In this way, a continuous airflow passage Q is formed from the rear air-conditioned space of the air-conditioning clothing 100 to the back of the wearer's head, during air conditioning, the shape of the collar portion 20 that is at least the height of the back of the wearer's head above the neck is maintained to more reliably guide airflow from the wearer's back to the back of the wearer's head.

[0123]

Here, as described above, the other configurations of the air-conditioning clothing according to the first modification are the same as those of the previously described embodiments.

[0124]

That is, according to the air-conditioning clothing of the first modified example, it is possible to secure the desired airflow passage between the air-conditioning clothing and the back of the wearer, and the airflow can be efficiently guided to the back of the wearer's head.

[0125]

Furthermore, FIG. 7 is a diagram showing a second modification of the planar shape of the collar portion 20 of the air-conditioning clothing 100.

[0126]

For example, as shown in FIG.7, the collar portion 20 may further include a storage portion PX provided in the first fabric 20a and having a predetermined strength, on the inner surface 20in of the collar portion 20. It is noted that the air-conditioning clothing 100 may further include a coolant (not shown) inserted into the storage section 20PXE.

[0127]

Furthermore, for example, the length of the adjustment string 50H (FIG. 2) of the ventilation space adjustment portion 50 before being adjusted is set to be longer than the width PXH of the storage portion PX.

[0128]

In the example shown in FIG. 7, the collar portion 20 is bent such that the outer surface of the upper portion 20E of the collar portion 20 overlaps the outer surface of the lower portion 20G of the collar portion 20, with the line K passing through the position of the upper end PXE of the storage section 20PX as the border.

[0129]

It is noted that, for example, in the vertical direction of the air-conditioning clothing 100, the height from the lower end to the upper end of the storage portion PX is less than half the height from the lower end to the upper end of the central portion 200 of the collar portion 20.

[0130]

Furthermore, in the example shown in FIG. 7, the rear air-conditioned space includes a region surrounded by the adjusted adjustment string 50 and the inner surface 10Yin of

the rear portion 10Y of the air-conditioning clothing 100. The airflow passage Q passes through at least an area surrounded by the adjusted adjustment string 50H and the inner surface 10Yin of the rear portion 10Y of the air-conditioning clothing 100, and the airflow passage Q passes through at least a region between the reinforcing core member 40 and the back of the wearer's head.

[0131]

Then, by adjusting the length between the first end 50a and the second end 50b of the adjustment string 50H of the ventilation space adjustment portion 50, even when adjusting the shape of the rear air-conditioned space between the back side of the wearer and the inner surface 10Yin of the rear portion 10Y of the clothing body 10, since the shape retention of the collar portion 20, which is the collar of the air-conditioning clothing 100, is further improved within the range of the width PXH of the storage portion PX, the airflow passage from behind the back of the wearer's head to above is more securely prevented from collapsing.

[0132]

In this way, a continuous airflow passage Q is formed from the rear air-conditioned space of the air-conditioning clothing 100 to the back of the wearer's head, during air conditioning, the shape of the collar portion 20 that is at least the height of the back of the wearer's head above the neck is maintained to more reliably guide airflow from the wearer's back to the back of the wearer's head.

[0133]

Here, as described above, the other configurations of the air-conditioning clothing according to the second modification are the same as those of the previously described embodiments.

[0134]

That is, according to the air-conditioning clothing of the third modified example, it is possible to secure the desired second passage between the air-conditioning clothing and the back of the wearer, and the airflow can be efficiently guided to the back of the wearer's head.

[0135]

It is noted that, in a case that the configuration of the collar portion 20 of the air-conditioning clothing according to the first modification example shown in FIG. 6 and the configuration of the collar portion 20 of the air-conditioning clothing according to the second modification example shown in FIG. 7 are combined, that is, when the collar portion 20 includes the reinforcing core member 40 and the storage section 20W, the position of the upper end 40E of the reinforcing core member 40 may be the same as the position of the upper end 20WE of the storage section 20W.

[0136]

Next, FIG. 8 is a cross-sectional view showing a third modification of the cross-section focusing on region Z of FIG. 2, which includes the upper portion of the rear portion 10Y of the clothing body of the air-conditioning clothing 100 and the collar portion 20.

[0137]

For example, as shown in FIG. 8, the collar portion 20 of this third modification has a shape that covers at least the back of the wearer's head above the wearer's neck. In order to maintain the shape of the collar portion 20, a reinforcing member 20Z is provided throughout the collar portion 20. In this third modification, in particular, the expanded size of the reinforcing member 20Z of this collar portion 20 is approximately the same as the expanded size of the fabric 20a inside the collar portion 20. It is noted that, similar to the previously described embodiments, this reinforcing member 20Z is, for example, a reinforcing cloth or interlining.

[0138]

As a result, the shape retention of the collar portion 20 of the air-conditioning clothing 100 can be improved, and the airflow passage Q from the back to the upper portion of the wearer's head can be prevented from being crushed.

[0139]

It is noted that, similarly to the previously described embodiments, the maximum height of the collar portion 20 from the connection portion (the lower end of the collar portion 20) with the clothing body 10 to the upper end of the collar portion 20 is, for example, 13 cm or more.

[0140]

In this way, by increasing the height of the collar portion 20 of the air-conditioning clothing 100, airflow can be more reliably sent to the back of the wearer's neck and around his face.

[0141]

Here, as mentioned above, in order to cover the area around the wearer's neck and the back of the head above the neck when worn by the wearer, the collar portion 20 needs to have the desired strength so that the collar portion 20 retains its shape without being deformed by airflow.

[0142]

Therefore, the collar portion 20 is composed of a plurality of members including a reinforcing member 20Z to maintain the shape of the collar portion 20.

[0143]

More specifically, for example, as shown in FIG. 8, the collar portion 20 includes a first fabric 20a, a second fabric 20b, and an inner core member 20Z.

[0144]

The first fabric 20a constitutes the inner surface 20_{in} of the collar portion 20.

[0145]

Furthermore, the second fabric 20b constitutes the outer surface 20_{out} of the collar portion 20.

[0146]

In addition, the inner core member 20Z is fixed to the first fabric 20a and constitutes the previously described reinforcing member 20Z.

[0147]

In particular, for example, as shown in FIG. 8, the upper ends 10XE, 10YE of the clothing body 10 and the lower end of the collar portion 20 are connected, by fixing the upper ends

10XE and YE of the clothing body 10 so as to be sandwiched between the lower ends of the first cloth 20a and the lower ends of the second cloth 20b.

[0148]

As a result, the boundary between the clothing body 10 and the collar portion 20 is made harder than in a case where two pieces of fabric are sewn together. That is, in order to hold the collar portion 20 in an upright state, the boundary portion is made hard.

[0149]

In particular, for example, as shown in FIG. 8, in a state where a first folded part D1, which is the upper end of the first fabric 20a folded back so as to sandwich the folded upper end of the inner core member 20Z, and a second folded part D2, which is the upper edge of the second fabric 20b folded back, are bonded together. In this state, the first folded part D1 and the second folded part D2 are continuously sewn together with the upper end of the inner core member 20Z at the first seam N1 along the upper end of the collar portion 20, from the inner surface 20in of collar portion 20 to the outer surface 20out.

[0150]

Furthermore, the end portion of the first fabric 20a at the first folded portion D1 and the end portion of the second fabric 20a at the second folded portion D2 are continuously sewn together at the third seam N3. The third seam N3 is located along the first seam N1 and closer to the upper end 20E of the collar portion 20 than the first seam N1.

[0151]

On the other hand, for example, as shown in FIG. 8, in a state where the third folded part D3, which is the lower part of the first fabric 20a folded back so as to sandwich the folded lower end of the inner core member 20Z, and the fourth folded part D4, which is the lower edge of the second fabric 20b folded back, are pasted together. In the state, the third folded portion D3 and the fourth folded portion D4 are sewn together with the lower end of the inner core member 20Z and the upper end 10YE (10XE) of the clothing body 10, continuously at the second seam N2 along the lower edge of the collar portion 20, from the inner surface 20in to the outer surface 20out of the collar portion 20.

[0152]

Furthermore, the end portion of the first fabric 20a at the third folded portion D3 and the end portion of the second fabric 20a at the fourth folded portion D4 are continuously sewn together at a fourth seam N4. The fourth seam N4 is located along the second seam N2 and closer to the lower end of the collar portion 20 than the second seam N2.

[0153]

Then, as mentioned above, in this third modification, in particular, the expanded size of the reinforcing member 20Z of this collar portion 20 is approximately the same as the expanded size of the fabric 20a inside the collar portion 20.

[0154]

Here, also in this third modification, as already mentioned, for example, as shown in FIGS. 2 and 5, the

ventilation space adjustment portion 50 is arranged closer to the collar portion 20 than the attachment region T.

[0155]

Furthermore, similar to the previously described embodiments, in a state in which the length of the adjustment string 50H is adjusted (that is, in a state in which any one of the plural adjustment holes 50c1, 50c2, and 50c3 is engaged with the engaging portion 50d), the length between the first end 50a and the second end 50b of the adjustment string 50H is shorter than the distance between the first adjustment portion 10Ya and the second adjustment portion 10Yb of the inner surface 10Yin of the rear portion 10Y of the clothing body 10.

[0156]

As a result, the inner surface 10Yin of the rear portion 10Y of the clothing body 10 is bent, during air conditioning (FIGS. 4 and 5), between the wearer's back and the inner surface 10Yin of the rear portion 10Y of the clothing body 10, a desired region through which airflow passes is formed at least between the inner surface 10Yin of the rear portion 10Y of the clothing body 10 and the adjustment string 50H.

[0157]

It is noted that, for example, the collar portion 20 is bent along the upper ends 10XE, 10YE of the clothing body 10 so that the upper portion 20E of the collar portion 20 overlaps at least a part of the lower portion 20G of the collar portion 20. This makes it possible to cope with cases where, for example, the wearer does not want to use the collar portion 20 in an upright position.

[0158]

Here, as described above, the other configurations of the air-conditioning clothing according to the third modification are the same as those of the previously described embodiments.

[0159]

That is, according to the air-conditioning clothing of the third modified example, it is possible to secure the desired airflow passage between the air-conditioning clothing and the back of the wearer, and the airflow can be efficiently guided to the back of the wearer's head.

[0160]

Additionally, as mentioned above, In each embodiment and modification, the temperature adjustment device is a fan. However, the temperature adjustment device may be a heat generating device that generates heat or other devices that can adjust the temperature.

[0161]

While certain embodiments have been described, these embodiments have been presented by way of example only, and are not intended to limit the scope of the inventions. Indeed, the novel methods and systems described herein may be embodied in a variety of other forms; furthermore, various omissions, substitutions and changes in the form of the methods and systems described herein may be made without departing from the spirit of the inventions. The accompanying claims and their equivalents are intended to cover such forms or modifications as would fall within the scope and spirit of the inventions.

[Explanation of symbols]

[0162]

100 air-conditioning clothing

10 clothing body

T1 first attaching portion

T2 second attaching portion

P2 power supply storage portion

P1 storage portion

20 collar portion

[Document name] CLAIMS

[Claim 1]

An air-conditioning clothing, for air-conditioning an inner space that exists between a wearer and the air-conditioning clothing that is worn by the wearer, comprising:

a clothing body that configured to be worn by the wearer, wherein the clothing body includes a front portion located anteriorly to face the wearer's chest and abdomen, and a rear portion located posteriorly to face the wearer's back, in a state worn by the wearer;

a first attaching portion provided at the rear portion of the clothing body and having a first air-conditioning hole passing through between the inner and outer surfaces of the clothing body; wherein the first attaching portion is removable with a first temperature adjustment device that takes outside air into the air-conditioning clothing through the first air-conditioning hole,

a second attaching portion provided at the rear portion of the clothing body and having a second air-conditioning hole penetrating between the inner and outer surfaces of the clothing body; wherein the first attaching portion is removably attached to a second temperature adjustment device that takes outside air into the air-conditioning clothing through the second air-conditioning hole; and

a collar portion provided at the upper end of the

clothing body, wherein the collar portion extends upward and covers at least the back of the wearer's head above the wearer's neck when the air-conditioning clothing is worn by the wearer,

wherein, when the air-conditioning clothing is air-conditioned, an airflow passage is formed through which outside air taken into the clothing body flows through the first air conditioning hole and the second air conditioning hole,

in the airflow passage, the outside air passes through and flows through a rear air-conditioned space that exists between the rear portion of the clothing body and the back of the wearer, towards between the inner surface of the collar portion and the back of the wearer's head above the wearer's neck, and

wherein the collar portion has a shape that covers at least the rear of the wearer's head.

[Claim 2]

The air-conditioning clothing according to claim 1, wherein, in order to maintain the shape, the collar portion is partially or entirely provided with a reinforcing member.

[Claim 3]

The air-conditioning clothing according to claim 2, wherein the reinforcing member is a reinforcing cloth or an interlining.

[Claim 4]

The air-conditioning clothing according to claim 1, wherein the collar portion is continuously provided from the upper end of the rear portion of the clothing body to the upper end of the front portion of the clothing body.

[Claim 5]

The air-conditioning clothing according to claim 4, wherein a height of the collar portion gradually decreases from a portion of the collar portion facing a temporal portion of the wearer toward anteriorly.

[Claim 6]

The air-conditioning clothing according to claim 5, wherein a height of the collar portion gradually decreases toward anteriorly, above the upper end of the front portion of the clothing body.

[Claim 7]

The air-conditioning clothing according to claim 6,

wherein an expanded planar shape of the collar portion is symmetrical in the lateral direction of the collar portion,

wherein a height from the lower end to the upper end of a central portion in the horizontal direction of the collar portion is the highest, and

wherein a height from the lower end to the upper end of both ends of the collar portion in the horizontal direction is the lowest.

[Claim 8]

The air-conditioning clothing according to claim 7,

wherein an upper end of a planar shape obtained by expanding the collar portion is convex, and

wherein an lower end of a planar shape obtained by expanding the collar portion is concave.

[Claim 9]

The air-conditioning clothing according to claim 3,

wherein the collar portion comprises;

a first fabric forming an inner surface of the collar portion;

a second fabric forming an outer surface of the collar portion;

an inner core member that is fixed to at least one of the first fabric and the second fabric and constitutes the reinforcing member,

wherein the upper end of the clothing body is sandwiched and fixed between a lower end of the first fabric and a lower end of the second fabric, thereby connecting the upper end of the clothing body and the lower end of the collar portion.

[Claim 10]

The air-conditioning clothing according to claim 9, wherein the collar portion further includes a storage section provided in the first fabric on an inner surface of the collar portion.

[Claim 11]

The air-conditioning clothing according to claim 9,

wherein, in a state where a first folded portion, obtained by folding back an upper end of the first fabric so as to sandwich an upper end of the inner core member, and a second folded portion, obtained by folding back an upper end of the second fabric, are pasted together,

the first folded portion and the second folded portion are continuously sewn together with the upper end of the inner core member at a first seam along the upper edge of the collar portion, from the inner surface to the outer surface of the collar portion, and

wherein, in a state where a third folded portion obtained by folding back a lower end of the first fabric so as to sandwich an lower end of the inner core member, and a fourth folded portion obtained by folding back an lower end of the second fabric, are stuck together,

the third folded portion and the fourth folded portion are continuously sewn together with the lower end of the inner core member and the upper end of the clothing body at a second seam along the lower end of the collar portion, from the inner surface to the outer surface of the collar portion.

[Claim 12]

The air-conditioning clothing according to claim 11,

wherein an end portion of the first fabric at the first folded portion and an end portion of the second fabric at the second folded portion are sewn together continuously at a third seam, the third seam is located along the first seam and closer to the upper end of the collar portion than the first seam, and

wherein the end portion of the first fabric at the third folded portion and the end portion of the second fabric at the fourth folded portion are sewn together continuously at a fourth seam, the fourth seam is located along the second seam and closer to the lower end of the collar portion than the second seam.

[Claim 13]

The air-conditioning clothing according to claim 9, wherein the collar portion is configured to fold along the upper end of the clothing body such that the upper portion of the collar portion overlaps at least a portion of the lower portion of the collar portion.

[Claim 14]

The air-conditioning clothing according to claim 10,

wherein the collar portion further includes a reinforcing core member that is harder than the first fabric and the second fabric, the reinforcing core member is provided between the first fabric and the second fabric, and the reinforcing core member extends in a lateral direction centered on a center portion of the collar portion facing the back of the

wearer's head above the wearer's neck.

[Claim 15]

The air-conditioning clothing according to claim 14, wherein a position of an upper end of the reinforcing core member is the same as a position of the upper end of the storage portion.

[Claim 16]

The air-conditioning clothing according to claim 14,

wherein the collar portion is bent such that the outer surface of the upper portion of the collar portion overlaps the outer surface of the lower portion of the collar portion, with a line passing through the upper end of the reinforcing core member as the border.

[Claim 17]

The air-conditioning clothing according to claim 14, further comprising:

a ventilation space adjustment portion provided on the inner surface of the rear portion of the clothing body, so that the collar portion is located between the upper end of the rear portion of the clothing body to which the collar portion is connected and the attachment area where the first attaching portion and the second attaching portion are located,

wherein the ventilation space adjustment portion adjusts the shape of the rear air-conditioned space during the air conditioning, by adjusting the shape of the rear portion of the clothing body by adjusting the

distance between the first adjustment portion and the second adjustment portion on the inner surface of the rear portion of the clothing body.

[Claim 18]

The air-conditioning clothing according to claim 17,

wherein the first adjustment portion is located to the right of the center line of the rear portion of the clothing body,

wherein the second adjustment portion is located to the left of the center line of the rear portion of the clothing body, and

wherein the first adjustment portion and the second adjustment portion are arranged side by side in the lateral direction of the clothing body.

[Claim 19]

The air-conditioning clothing according to claim 18,

wherein the ventilation space adjustment portion includes an adjustment string having:

a first end connected to the first adjustment portion of the rear inner surface of the clothing body; and

a second end connected to the second adjustment portion on the inner surface of the rear portion of the clothing body, and

wherein the ventilation space adjustment portion adjusts the shape of the rear air-conditioned space by

adjusting the length between the first end and the second end of the adjustment string.

[Claim 20]

The air-conditioning clothing according to claim 14, wherein a length of the adjustment string before being adjusted is longer than a width of the reinforcing core member.

[Claim 21]

The air-conditioning clothing according to claim 20, wherein the ventilation space adjustment portion is located closer to the collar portion than the attachment area.

[Claim 22]

The air-conditioning clothing according to claim 19,

wherein the adjustment string has a plurality of adjustment holes formed therein, and

wherein the adjustment string includes an engaging portion that engages with any one of the plurality of adjustment holes.

[Claim 23]

The air-conditioning clothing according to claim 20,

wherein the rear air-conditioned space includes a region surrounded by the adjusted adjustment string and the inner surface of the rear portion of the air-conditioning clothing, and

wherein the airflow passage passes through at

least an area surrounded by the adjusted adjustment string and the inner surface of the rear portion of the air-conditioning clothing, and passes through at least an area between the reinforcing core member and the back of the wearer's head.

[Claim 24]

The air-conditioning clothing according to claim 19, wherein the length of the adjustment string before being adjusted is longer than the width of the storage section.

[Claim 25]

The air-conditioning clothing according to claim 24,

wherein the rear air-conditioned space includes a region surrounded by the adjusted adjustment string and the inner surface of the rear portion of the air-conditioning clothing, and

wherein the airflow passage passes through at least an area surrounded by the adjusted adjustment string and the inner surface of the rear portion of the air-conditioning clothing, and also passes through at least an area between the storage section and the back of the wearer's head.

[Claim 26]

The air-conditioning clothing according to claim 25, wherein, in the vertical direction of the air-conditioning clothing, a height from the lower end to the upper end of the storage portion is less than half

a height from the lower end to the upper end of the central portion of the collar portion.

[Claim 27]

The air-conditioning clothing according to claim 1, further comprising:

a first temperature adjustment device attached to the first attaching portion; and

a second temperature adjustment device attached to the second attaching portion.

[Claim 28]

The air-conditioning clothing according to claim 1,

wherein a first heat generating device that generates heat using electric power supplied from a power source is removably attached to the first attaching portion, in a state where the first temperature adjustment device is removed, and

wherein a second heat generating device that generates heat using electric power supplied from the power source is removably attached to the second attaching portion, in a state where the second temperature adjustment device is removed.

[Claim 29]

The air-conditioning clothing according to claim 1, wherein the air-conditioning clothing is a vest or a blouson.

[Claim 30]

The air-conditioning clothing according to claim

1, wherein the first temperature adjustment device is a first fan, and the second temperature adjustment device is a second fan.