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(54) **SEAT CUSHION ASSEMBLY**

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(57) **ABSTRACT**

Disclosed is a seat cushion assembly, whose cushioning effect can be maintained even when a user sits on the seat cushion assembly for a long time, thereby providing the user with more improved comfort and overcoming the problems of the conventional seat cushion such as trouble in the circulation of blood. The seat cushion assembly includes a coat member and a porous cushioning member. The coat member includes a first cushion coat and a second cushion overlapped on each other. A first space is formed in the first cushion coat, and a second space is formed in the second cushion coat. The first space is filled with a predetermined quantity of air which provides elasticity for the first cushion coat, and a plurality of pores are formed through the second cushion coat. The porous cushioning member is contained in the second space, and is made from elastic and flexible material, thereby providing elasticity for the seat cushion assembly.

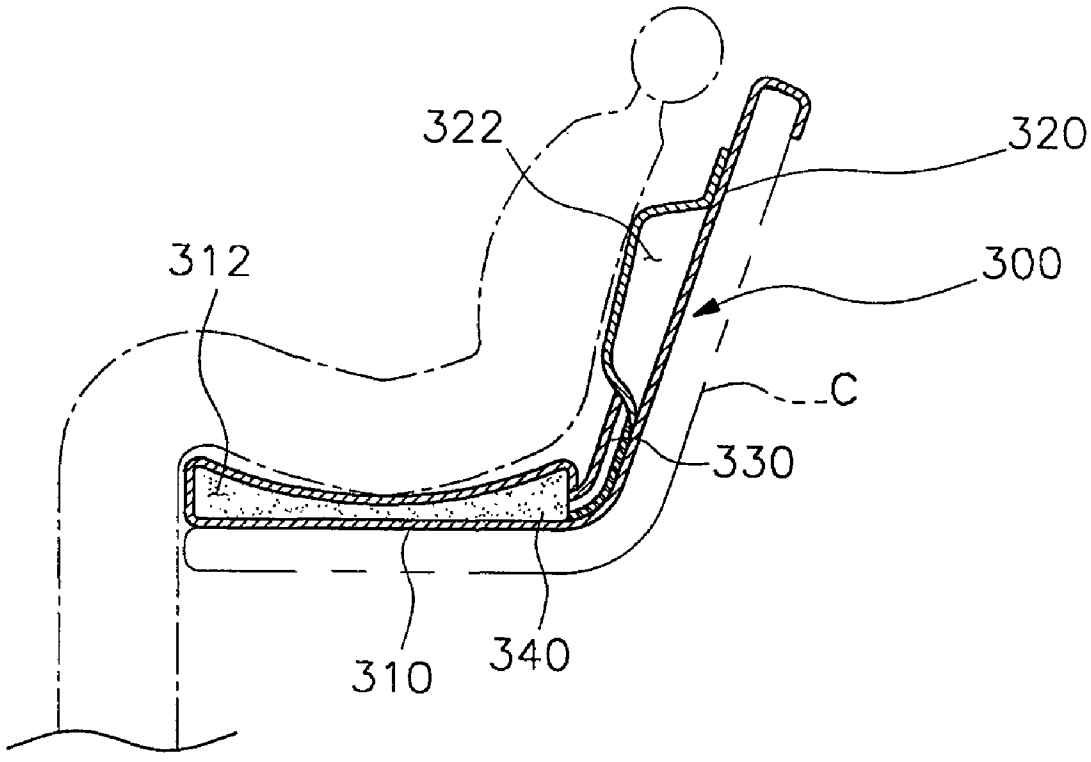


FIG 1

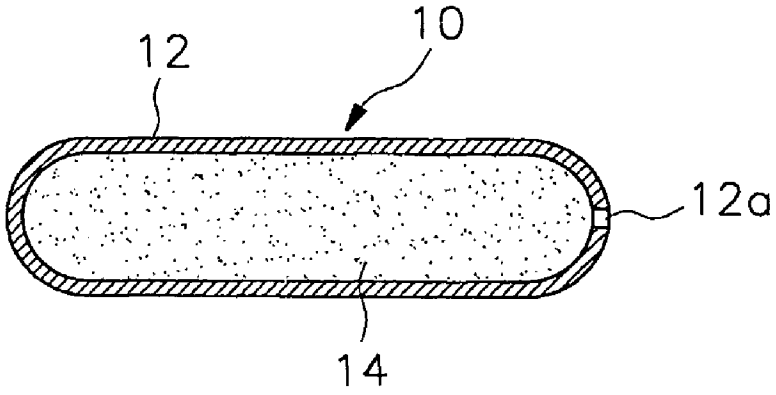


FIG 2

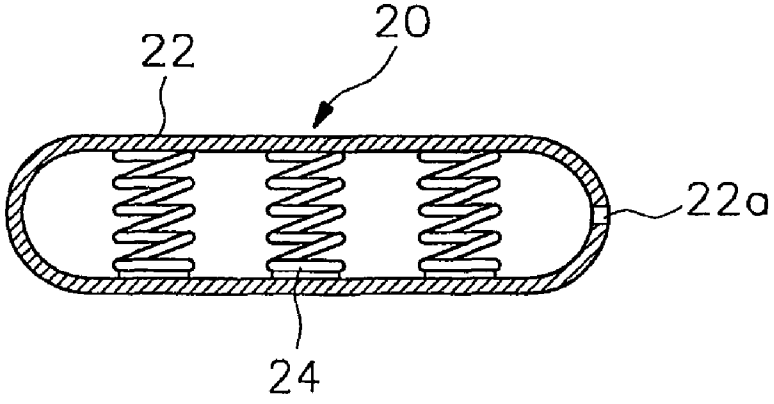


FIG 3

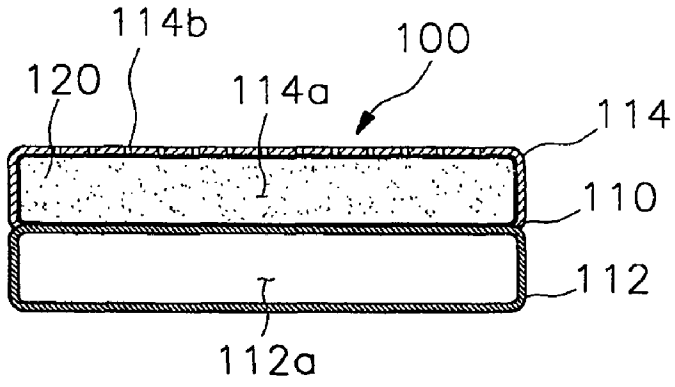


FIG 4

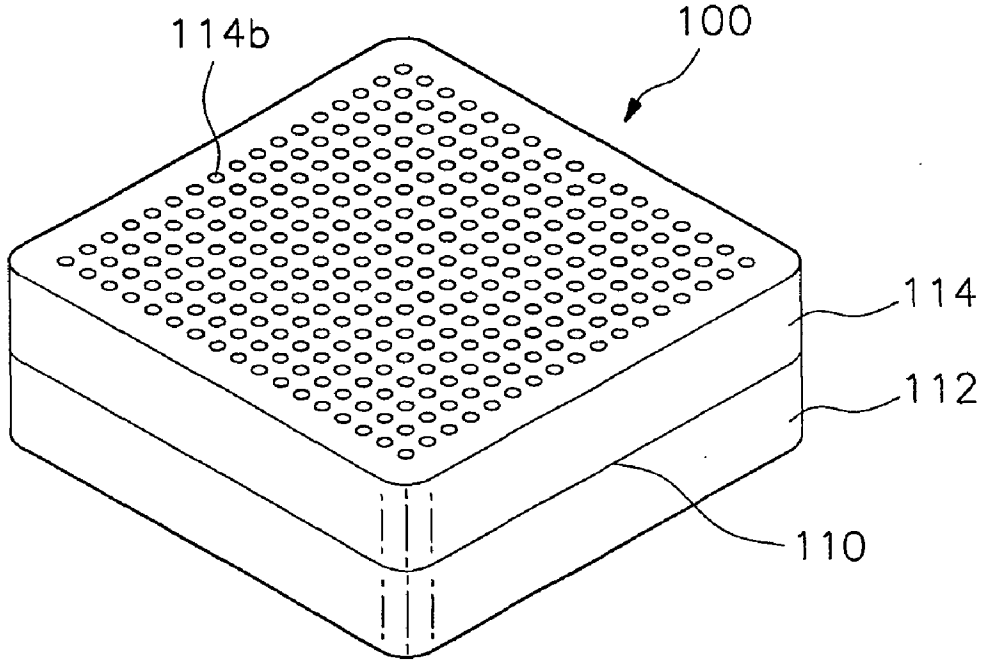


FIG 5

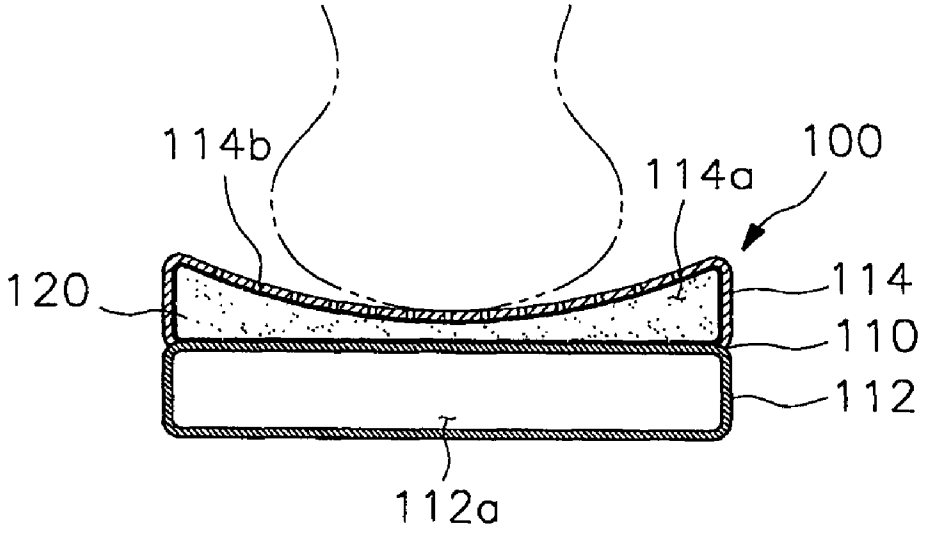

114b
114a
100
120
114
110
112
112a

FIG 6

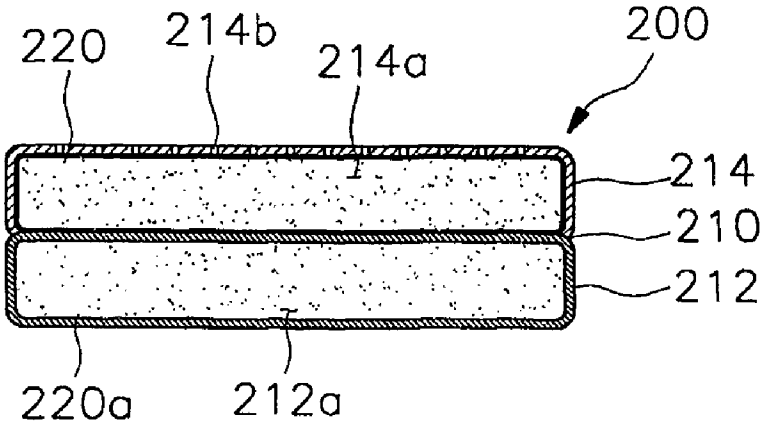

220
214b
214a
200
214
210
212
220a
212a

FIG 7

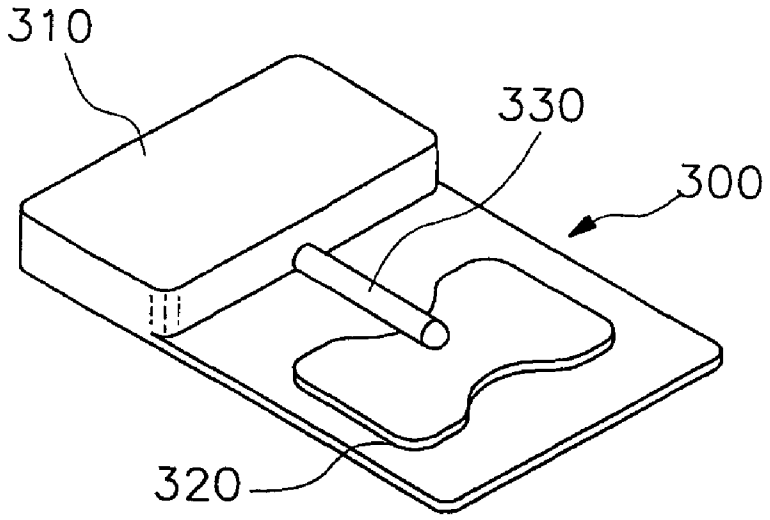


FIG 8

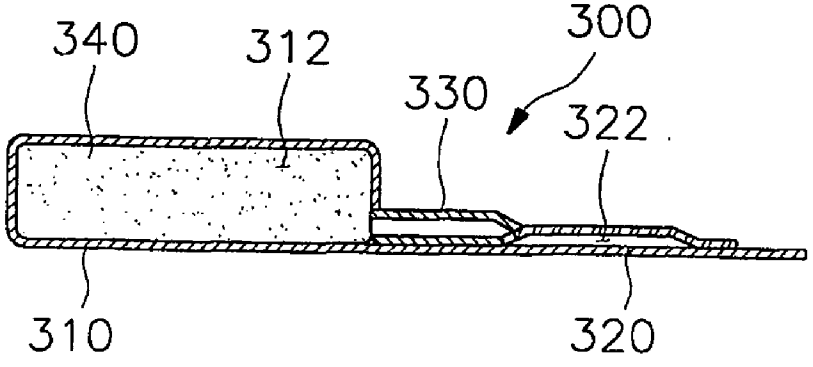


FIG 9

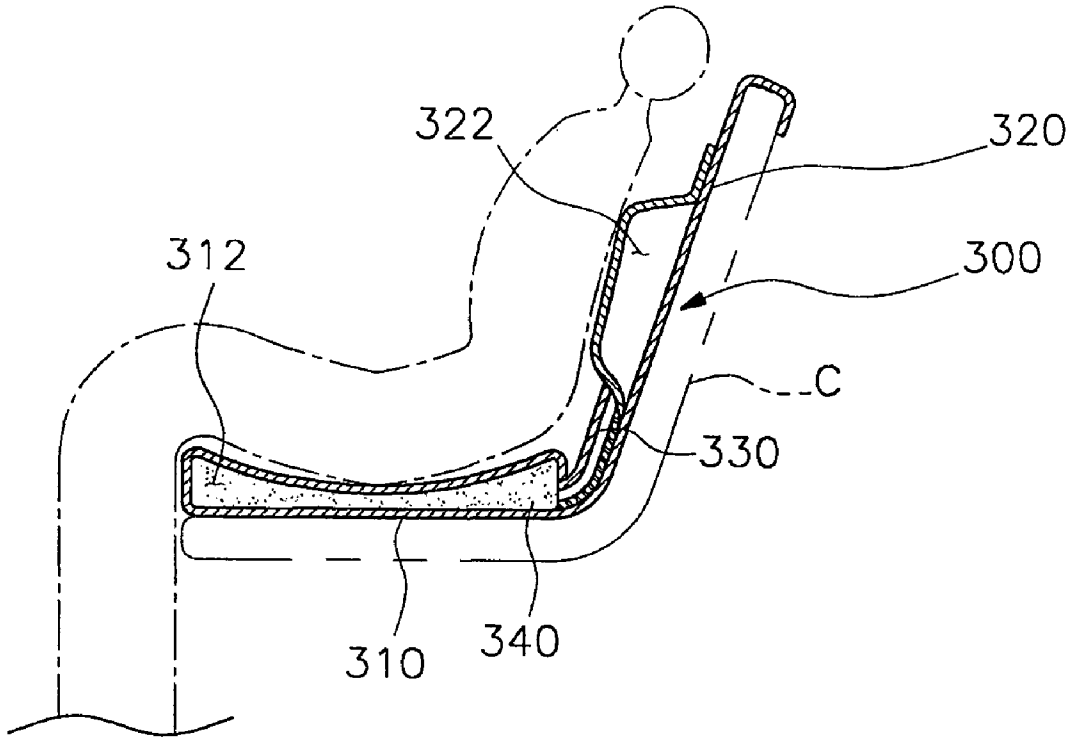
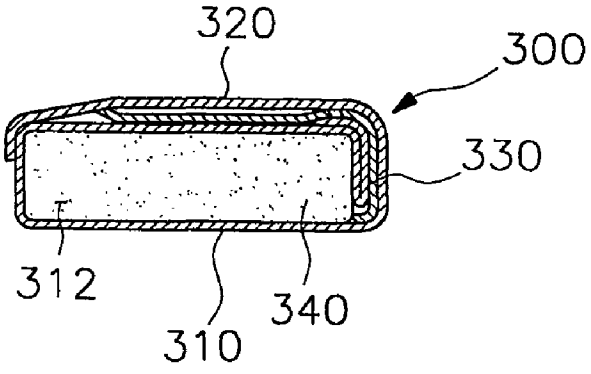


FIG 10



SEAT CUSHION ASSEMBLY

TECHNICAL FIELD

[0001] The present invention relates to a seat cushion placed on a chair, a sofa, etc., and more particularly to a seat cushion assembly, whose cushioning effect can be maintained even when a user sits on the seat cushion assembly for long time.

BACKGROUND ART

[0002] In general, a cushion is an article placed on a chair, a sofa, a seat in a vehicle, etc., and there are cushions having various utilities, such as a soft cushion, an underlaid cushion on a chair, and an auxiliary cushion used auxiliary in a seat of an automobile.

[0003] Also, there are various cushions such as a seat cushion for softly supporting a user's hip, a backrest cushion for softly supporting a user's back, and an integrated type cushion for softly supporting a user's hip and back.

[0004] **FIG. 1** is a sectional view of a conventional seat cushion, and **FIG. 2** is a sectional view of anther conventional seat cushion.

[0005] Referring to **FIG. 1**, the conventional seat cushion **10** includes a coat member **12** and a porous cushioning member **14** contained in the coat member **12**. The coat member **12** is made from flexible material such as cloth, non-woven cloth, and skin, and an inner space having a predetermined size is formed in and an air entrance hole **12***a* is formed through the coat member **12**. The porous cushioning member **14** is made from flexible and elastic material, so as to provide elasticity for the seat cushion **10**.

[0006] In the meantime, another seat cushion **20** shown in **FIG. 2** includes a coat member **22** and a plurality of elastic springs **24**. The coat member **22** is made from flexible material such as cloth, non-woven cloth, and skin, and an inner space having a predetermined size is formed in and an air entrance hole **22***a* is formed through the coat member **22**. The elastic springs **24** are placed in the coat member **22**, so as to provide elasticity for the seat cushion **20**.

[0007] In the conventional cushions as described above, when a user's hip, etc., presses the coat member, the air in the coat member is gradually discharged while the cushioning member or the elastic springs are pressed.

[0008] In the seat cushion **10** having the porous cushioning member **14**, when a user sits on the coat member **22**, the air in the coat member is discharged, and then the porous cushioning member is compressed. In the end, the porous cushioning member is completely compressed into a state in which almost all the air soaked in the porous cushioning member disappears.

[0009] In this state, the cushioning member cannot play its role any longer, so that the user sitting on the seat cushion feels as if he or she were sitting on a hard plate. Then, the user's hip and blood vessels in the user's body is compressed, so that the user comes to have a bad circulation of blood. This problem has a bad effect on the user's health and may cause various diseases in relation to blood vessels, especially when the user has to sit on the cushion member for long time.

[0010] Further, in the seat cushion **20** having the elastic springs **24** also, the compressed elastic spring may compress the user's hip and blood vessels in the user's body, thereby causing the user to have a bad circulation of blood.

DISCLOSURE OF THE INVENTION

[0011] Therefore, the present invention has been made in view of the above-mentioned problems, and it is an object of the present invention to provide a seat cushion assembly, whose cushioning effect can be maintained even when a user sits on the seat cushion assembly for long time, thereby providing the user with more improved comfort and overcoming the problems of the conventional seat cushion such as trouble in the circulation of blood.

[0012] According to an aspect of the present invention, there is provided a seat cushion assembly comprising: a coat member including a first cushion coat and a second cushion coat, the first cushion coat having a first space formed in the first cushion coat, the second cushion coat having a second space formed in the second cushion coat, the first cushion coat and the second cushion coat being overlapped on each other, the first space being filled with a predetermined quantity of air which provides elasticity for the first cushion coat, the second cushion coat having a plurality of pores formed through the second cushion coat, through which the second space communicates with an exterior space of the second cushion coat; and a first porous cushioning member contained in the second space defined by the second cushion coat, the first porous cushioning member being made from elastic and flexible material, thereby providing elasticity for the seat cushion assembly.

[0013] In the seat cushion assembly, it is preferred that the first cushion coat and the second cushion coat are integrated to each other while the first space and the second space are separated from each other.

[0014] The seat cushion assembly may further comprise a second porous cushioning member contained in the first space defined by the first cushion coat, the second porous cushioning member being made from elastic and flexible material.

[0015] According to an aspect of the present invention, there is provided a seat cushion assembly comprising: a seat coat made from flexible material, in which a first space is formed, the first space being filled with a predetermined quantity of air, the seat coat serving as a seat on which a user's hip is laid on; a backrest coat foldably connected with an upper end of the seat coat, the backrest coat having a second space formed in the backrest coat, the backrest coat serving as a backrest on which a user's back leans, a portion of air in the first space flows into the second space when a load is laid on the seat coat; and a connecting tube connecting the first space of the seat coat and the second space of the backrest coat with each other, so that air can flow between the first space of the seat coat and the second space of the backrest coat.

[0016] In this case also, the seat cushion assembly may further comprise a porous cushioning member contained in the first space, the porous cushioning member being capable of soaking air.

BRIEF DESCRIPTION OF THE DRAWINGS

[0017] The foregoing and other objects, features and advantages of the present invention will become more

apparent from the following detailed description when taken in conjunction with the accompanying drawings in which:

[0018] **FIG. 1** is a sectional view of a conventional seat cushion;

[0019] **FIG. 2** is a sectional view of anther conventional seat cushion;

[0020] **FIG. 3** is a sectional view of a seat cushion assembly according to a first embodiment of the present invention;

[0021] **FIG. 4** is a perspective view of the seat cushion assembly shown in **FIG. 3**;

[0022] **FIG. 5** is a view showing a state in which the seat cushion assembly shown in **FIG. 3** is used;

[0023] **FIG. 6** is a sectional view of a seat cushion assembly according to a second embodiment of the present invention;

[0024] **FIG. 7** is a perspective view of a seat cushion assembly according to a third embodiment of the present invention;

[0025] **FIG. 8** is a longitudinal section of the seat cushion assembly shown in **FIG. 7**;

[0026] **FIG. 9** is a sectional view showing a state in which the seat cushion assembly shown in **FIG. 7** is used; and

[0027] **FIG. 10** is a sectional view showing another state in which the seat cushion assembly shown in **FIG. 7** is used.

BEST MODE FOR CARRYING OUT THE INVENTION

[0028] Hereinafter, seat cushion assemblies according to the preferred embodiments of the present invention will be described in detail with reference to the accompanying drawings.

[0029] **FIG. 3** is a sectional view of a seat cushion assembly according to a first embodiment of the present invention, **FIG. 4** is a perspective view of the seat cushion assembly shown in **FIG. 3**, and **FIG. 5** is a view showing a state in which the seat cushion assembly shown in **FIG. 3** is used.

[0030] Referring to FIGS. **3** to **5**, a seat cushion assembly **100** according to the first embodiment of the present invention includes a coat member **110** and a porous cushioning member **120**. The coat member **110** includes a first cushion coat **112** in which a first space **112***a* is formed, and a second cushion coat **114** in which a second space **114***a* is formed. The first cushion coat **112** and the second cushion coat **114** are overlapped on each other. The porous cushioning member **120** is contained in the second space **114***a* defined by the second cushion coat **114** and is made from elastic material, thereby providing elasticity for the seat cushion assembly **100**.

[0031] The first space **112***a* defined by the first cushion coat **112** is filled with gas such as air, and the second cushion coat **114** has an upper surface through which a plurality of pores **114***b* are formed, so that the second space **114***a* can communicate with an exterior space thereof. In this case, it goes without saying that the pores **114***b* may formed through a side surface of the second cushion coat **114**.

[0032] Further, an air injection hole (not shown) is formed through the first cushion coat **112** of the coat member **110**, so that air can be injected into and filled in the first space **112***a*. The air injection hole is equipped with a check valve (not shown) which allows air to flow in only one direction. The check valve prevents the air filled in the first space **112***a* from being discharged to the exterior.

[0033] It is preferred that the porous cushioning member **120** disposed in the second space **114***a* of the second cushion coat **114** is made from elastic and flexible material and the coat member **110** is made from synthetic resin such as Urethane.

[0034] In the seat cushion assembly **100** having the construction as described above, the first cushion coat **112** and the second cushion coat **114** are integrated with and overlapped on each other by a high-frequency junction, etc., while the first space **112***a* of the first cushion coat **112** and the second space **114***a* of the second cushion coat **114** are separated from each other.

[0035] Referring to **FIG. 5**, in the seat cushion assembly **100** having the construction as described above, when a user's weight M is loaded on the second cushion coat **114** of the coat member **110**, the upper surface of the second cushion coat **114** is pressed downward while air in the second space **114***a* is discharged through the pores **114***b*, so that the porous cushioning member **120** is gradually compressed.

[0036] In a state that the second cushion coat **114** is compressed as described above, when the porous cushioning member **120** is compressed and reaches the interface between the first cushion coat **112** and the second cushion coat **114**, the air in the first space **112***a* functions as a cushion while the porous cushioning member **120** in the second space **114***a* assists the cushioning function.

[0037] Therefore, the pressure compressing blood vessels in the user's hip is reduced.

[0038] Meanwhile, when the weight loaded on the second cushion coat **114** disappears, the coat member **110** restores its original shape by a self-restoring force of the porous cushioning member **120**. In this case, while the porous cushioning member **120** is restored to its original state, external air is introduced through the pores **114***b* into the second space **114***a*.

[0039] **FIG. 6** is a sectional view of a seat cushion assembly according to a second embodiment of the present invention.

[0040] Referring to **FIG. 6, a** seat cushion assembly **200** according to the second embodiment of the present invention includes a similar construction to the seat cushion assembly **100** according to the first embodiment of the present invention shown in FIGS. **3** to **5**. That is to say, the seat cushion assembly **200** also includes a coat member **210** and a first porous cushioning member **220**. The coat member **210** includes a first cushion coat **212** in which a first space **212***a* is formed, and a second cushion coat **214** in which a second space **214***a* is formed. The first cushion coat **212** and the second cushion coat **214** are overlapped on each other. The first porous cushioning member **220** is contained in the second space **214***a* defined by the second cushion coat **214** and is made from elastic material, thereby providing elas-

ticity for the seat cushion assembly **200**. However, differently from the seat cushion assembly **100**, the seat cushion assembly **200** further includes a second porous cushioning member **220***a* which is contained in the first space **212***a* defined by the first cushion coat **212** and is made from elastic material, thereby providing elasticity for the seat cushion assembly **200**.

[**0041**] In the seat cushion assembly **200** also, the first space **212***a* defined by the first cushion coat **212** is filled with gas such as air while containing the second porous cushioning member **220***a*, and the second cushion coat **214** has an upper surface through which a plurality of pores **214***b* are formed, so that the second space **214**a can communicate with an exterior space thereof. In this case, it is preferred that the first space **212***a* of the first cushion coat **212** is filled with air whose quantity is smaller than a volume of an entire empty room of the first space **212***a* in a normal state, so that the first space **212***a* of the first cushion coat **212** can be compressed to some degree, thereby increasing the cushioning effect, when a user sits on the seat cushion assembly **200**.

[**0042**] Meanwhile, even when the first space **212***a* has a poor air-tightness and the air in the first space **212***a* leaks little by little, the second porous cushioning member **220***a* disposed in the first space **212***a* of the first cushion coat **212** as described above can perform the cushioning function sufficiently well in place of the leaking air.

[**0043**] Although FIGS. **3** to **6** show the seat cushion assembly **100** and the seat cushion assembly **200** according to the first and second embodiments of the present invention, each of which has a shape of a rectangular solid, it goes without saying that the seat cushion assembly **100** and the seat cushion assembly **200** may have other shapes such as a circular shape, an ellipsoidal shape, and other polygonal shapes.

[**0044**] **FIG. 7** is a perspective view of a seat cushion assembly according to a third embodiment of the present invention, **FIG. 8** is a longitudinal section of the seat cushion assembly shown in **FIG. 7**, and **FIG. 9** is a sectional view showing a state in which the seat cushion assembly shown in **FIG. 7** is used.

[**0045**] Referring to FIGS. **7** to **9**, a seat cushion assembly **300** according to the third embodiment of the present invention includes a seat coat **310**, a backrest coat **320**, and a connecting tube **330**. The seat coat **310** serves as a seat on which a user's hip is laid, and a first space **312** is formed in the seat coat **310**. The backrest coat **320** is foldably connected to one end of the seat coat **310** and serves as a backrest, and a second space **322** is formed in the backrest coat **320**. The connecting tube **330** connects the first space **312** and the second space **322** with each other.

[**0046**] In the seat cushion assembly **300** according to the third embodiment of the present invention as described above, the first space **312**, the second space **322**, and the connecting tube **330** connected with each other form a closed space which is insulated from an exterior space thereof and filled with a predetermined quantity of gas such as air. Due to such a construction, when a load is placed on the seat coat **310**, air in the first space **312** flows through the connecting tube **330** into the second space **322** of the backrest coat **320**.

[**0047**] In other words, the seat cushion assembly **300** according to the third embodiment of the present invention includes a seat coat **310** made from flexible material, which defines the first space **312** filled with a predetermined quantity of air, so as to seat a user's hip thereon, a backrest coat **320** foldably connected with an upper end of the seat coat **310** and serving as a backrest, which defines the second space **322** into which a portion of air in the first space **312** flows when a load is laid on the seat coat **310**, and a connecting tube **330** connecting the first space **312** of the seat coat **310** and the second space **322** of the backrest coat **320** with each other, so that air can flow between the first space **312** of the seat coat **310** and the second space **322** of the backrest coat **320**.

[**0048**] In the seat cushion assembly **300** having the construction described above, a porous cushioning member **340** having elasticity is disposed in the first space **312** of the seat coat **310**. Therefore, even when air leaks out of the first space **312** little by little, the porous cushioning member **340** can perform the cushioning function sufficiently well in place of the leaking air.

[**0049**] In the construction described above, it is preferred that the seat coat **310**, the backrest coat **320**, and the connecting tube **330** are made from flexible material, especially synthetic resin such as Urethane. Further, it is preferred that the connecting tube **330** is made from material having a larger stiffness than that of the backrest coat **320**.

[**0050**] The seat coat **310** is formed by attaching flexible sheets of artificial resin to each other through a high-frequency adhesion while forming the first space **312** in the seat coat **310**. The porous cushioning member **340** such as sponge is placed in the first space **312** of the seat coat **310** formed in this way.

[**0051**] Further, when the backrest coat **320** is formed, an edge of a flexible sheet of artificial resin is attached to another flexible sheet of artificial resin which is attached to or integrally formed with the seat coat **310** through a high-frequency adhesion so that the second space **322** is formed the backrest coat **320**.

[**0052**] After the seat coat **310** and the backrest coat **320** are formed in the way described above, both ends of the connecting tube **330** are connected to the first space **312** and the second space **322** so as to enable the first space **312** of the seat coat **310** and the second space **322** of the backrest coat **320** to communicate with each other.

[**0053**] The first space **312**, the second space **322**, and the connecting tube **330** having the construction described above contain air capable of freely flowing in them. In this case, most of the air has soaked in the porous cushioning member **340** in the first space **312**. Therefore, in this state, the seat coat **310** maintains its shape as the shape of the porous cushioning member **340**, while the backrest coat **320** is in a flat state.

[**0054**] Meanwhile, the first space **312**, the second space **322**, and the connecting tube **330** are filled with a proper quantity of air, which enables pressure of the air to prevent the porous cushioning member **340** from being completely compressed when a user sits on the seat cushion assembly **300**.

[**0055**] Further, an air injection hole (not shown) is formed through the first space **312** of the seat coat **310**, so that air can be injected into and filled in the first space **312**. The air

injection hole is equipped with a check valve (not shown) which allows air to flow in only one direction.

[0056] Hereinafter, the operation of the seat cushion assembly **300** having the construction described above will be described. First, the seat coat **310** is placed on a seat of a chair C, and the backrest coat **320** is hanged over a backrest of the chair C while being in tight contact with the backrest. In this state, when a user sits on the seat coat **310**, the porous cushioning member **340** is gradually compressed, while the air in the first space **312** moves through the connecting tube **330** into the second space **322** of the backrest coat **320**, so that the second space **322** is inflated, so as to play a good role as the backrest.

[0057] As described above, the seat coat **310** and the backrest coat **320** cushion a user's hip and back by means of the air filled in the first space **312** and the second space **322**, thereby preventing blood vessels in the user's hip and back from being compressed.

[0058] From this state, when the load laid on the seat coat **310** disappears, the first space **312** is inflated by the restoring force of the porous cushioning member **340**, so that the air in the second space **322** moves through the connecting tube **330** back into the first space **312** and soaks into the porous cushioning member **340**. Then, the backrest coat **320** is compressed and becomes flat.

[0059] **FIG. 10** is a sectional view showing another state in which the seat cushion assembly shown in **FIG. 7** is used.

[0060] Meanwhile, the seat cushion assembly **300** according to the third embodiment can be used as a cushion without a backrest by folding the backrest coat **320** on the seat coat **310** as shown in **FIG. 10**. In this case, it is preferred that the quantity of the air is smaller than that in the case where the seat cushion assembly **300** is used as shown in **FIG. 9**, so that the seat coat **310** can be compressed more, thereby functioning better as a cushion.

[0061] As can be seen from the foregoing, in a seat cushion assembly according to the present invention provides, the cushioning effect by the seat cushion assembly can be maintained even when a user sits on the seat cushion assembly for long time, thereby providing the user with more improved comfort and overcoming the problems of the conventional seat cushion such as trouble in the circulation of blood.

[0062] While this invention has been described in connection with what are presently considered to be the most practical and preferred embodiments, it is to be understood that the invention is not limited to the disclosed embodiments and the drawings, but, on the contrary, it is intended to cover various modifications and variations within the spirit and scope of the appended claims.

What is claimed is:

1. A seat cushion assembly comprising:

a coat member including a first cushion coat and a second cushion coat, the first cushion coat having a first space formed in the first cushion coat, the second cushion coat having a second space formed in the second cushion coat, the first cushion coat and the second cushion coat being overlapped on each other, the first space being filled with a predetermined quantity of air which provides elasticity for the first cushion coat, the second cushion coat having a plurality of pores formed through the second cushion coat, through which the second space communicates with an exterior space of the second cushion coat; and

a first porous cushioning member contained in the second space defined by the second cushion coat, the first porous cushioning member being made from elastic and flexible material, thereby providing elasticity for the seat cushion assembly.

2. A seat cushion assembly as claimed in claim 1, wherein the first cushion coat and the second cushion coat are integrated to each other while the first space and the second space are separated from each other.

3. A seat cushion assembly as claimed in claim 1 or **2**, further comprising a second porous cushioning member contained in the first space defined by the first cushion coat, the second porous cushioning member being made from elastic and flexible material.

4. A seat cushion assembly comprising:

a seat coat made from flexible material, in which a first space is formed, the first space being filled with a predetermined quantity of air, the seat coat serving as a seat on which a user's hip is laid on;

a backrest coat foldably connected with an upper end of the seat coat, the backrest coat having a second space formed in the backrest coat, the backrest coat serving as a backrest on which a user's back leans, a portion of air in the first space flows into the second space when a load is laid on the seat coat; and

a connecting tube connecting the first space of the seat coat and the second space of the backrest coat with each other, so that air can flow between the first space of the seat coat and the second space of the backrest coat.

5. A seat cushion assembly as claimed in claim 4, further comprising a porous cushioning member contained in the first space, the porous cushioning member being capable of soaking air.

* * * * *