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(54) Electronic device-accommodating bag and shock-absorbing member

(57) The present invention provides an electronic device-accommodating bag (1) in which a shock is hardly transmitted to an accommodated electronic device (personal computer). The electronic device-accommodating bag includes a pair of side face portions (2), a back face portion (3) that connects end portions of the side face portions (2) in an openable and closable manner, a fastener portion (4) that is attached to peripheries of the side face portions (2) at a location excluding the back face portion (3), and a shock-absorbing portion (5) that is disposed along an entire outer peripheral edge portion (23) of the side face portions (2). The shock-absorbing portion (5) is made of a synthetic resin, and is formed so as to be hollow along the entire outer peripheral edge portion (23) of the side face portions (2). A rib (53) extending in a direction parallel to the side face portions (2) is formed in an internal space of the shock-absorbing portion (5) so as to connect opposing inner faces of the shock-absorbing portion (5).

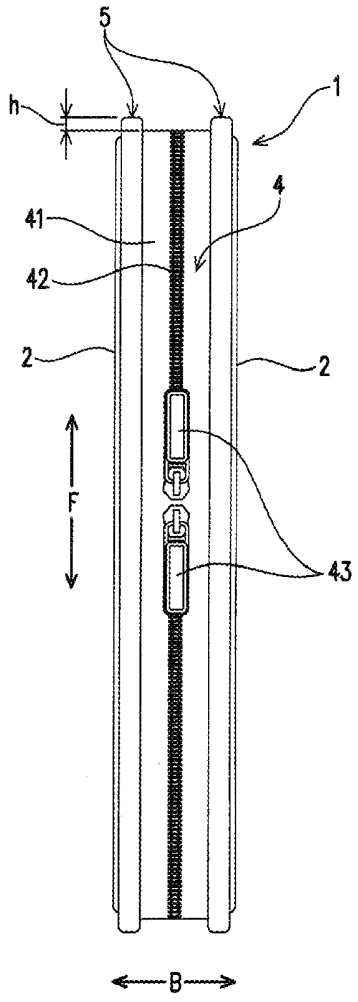

Fig. 1

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Description

BACKGROUND OF THE INVENTION

1. Field of the Invention

[0001] The present invention relates to a bag for accommodating an electronic device, such as a notebook-sized personal computer, and a shock-absorbing member used therein.

2. Description of Related Art

[0002] It is preferable not to apply a shock to the extent possible to an electronic device, such as a notebook-sized personal computer (hereinafter, referred to as a "personal computer"), a portable CD drive, a portable DVD drive, a portable HD drive, an AC adapter and cable, a mouse, and the like, when carrying these devices.

[0003] JP 2002-219014A discloses an electronic device-accommodating bag for accommodating or for accommodating and carrying this sort of electronic device. JP 2002-219014A discloses an electronic device-accommodating bag, including a pair of side face portions, a back face portion that connects end portions on one side of the side face portions in an openable and closable manner, and a fastener portion that is attached to peripheries of the side face portions at a location excluding the back face portion, in which frame members are arranged along the entire peripheries of the side face portions. The frame members are formed by bending a metal material into ring shape.

[0004] In the above-described conventional electronic device-accommodating bag, the frame members are made of a metal material, and, thus, their hardness is high, and suppression of the deformation of the electronic device-accommodating bag can be expected. However, there is a problem in that, since the hardness of the frame members is high, shocks are accordingly easily transmitted to the accommodated electronic device.

SUMMARY OF THE INVENTION

[0005] In view of the above-described problem, it is an object of the present invention to provide an electronic device-accommodating bag in which shocks are hardly transmitted to an accommodated electronic device, and a shock-absorbing member used therein.

[0006] The present invention is directed to an electronic device-accommodating bag, including: a pair of side face portions; a back face portion that connects end portions of the side face portions in an openable and closable manner; a fastener portion that is attached to peripheries of the side face portions at a location excluding the back face portion; and a shock-absorbing portion that is disposed along an entire outer peripheral edge portion of the side face portions; wherein the shock-absorbing portion is formed so as to be hollow along the entire outer peripheral edge portion of the side face portions.

[0007] In the above-described configuration, the shock-absorbing portion is formed so as to be hollow, and, thus, the shock-absorbing properties are high. Accordingly, for example, even in the case where a shock is applied (e.g., the electronic device-accommodating bag is dropped or collides) while carrying the electronic device-accommodating bag, the shock is hardly transmitted to an electronic device, such as a personal computer, accommodated inside.

[0008] Here, a pair of side face portions and a back face portion that connects end portions on one side of the side face portions in an openable and closable manner may be arranged as separate members and then integrally attached, or the side face portions and the back face portion may be formed as an originally integrated member.

[0009] The electronic device-accommodating bag of the present invention may have the feature that a rib extending in a direction parallel to the side face portions is formed in an internal space of the shock-absorbing portion so as to connect opposing inner faces of the shock-absorbing portion.

[0010] According to the above-described configuration, even in the case where the shock-absorbing portion is formed so as to be hollow, when a shock is received by the electronic device-accommodating bag, the rib is deformed, and, thus, the shock is absorbed. Furthermore, the rib suppresses significant deformation of the shock-absorbing portion, the shock-absorbing properties of the entire electronic device-accommodating bag are maintained, and a shock to the electronic device is suppressed.

[0011] The electronic device-accommodating bag of the present invention may have the feature that a side portion of the shock-absorbing portion integrally has an attachment portion extending in a direction parallel to the side face portions, and the shock-absorbing portion is fixed via the attachment portion to the outer peripheral edge portion of the side face portions.

[0012] According to the above-described configuration, the attachment portion is deformed, and, thus, a shock is absorbed. Furthermore, the attachment portion and the shock-absorbing portion are integrally linked to maintain the shock-absorbing properties of the entire electronic device-accommodating bag, and a shock to the electronic device is suppressed.

[0013] The electronic device-accommodating bag of the present invention may have the feature that the shock-absorbing portion has a pair of first side walls that oppose each other in a thickness direction and a pair of second side walls that are continued from the first side walls and that oppose each other in a direction parallel to the side face portions, and the shock-absorbing portion is formed so as to have a rectangular cross-section.

[0014] According to the above-described configuration, the pair of first side walls and the pair of second side walls receive a shock from the direction parallel to the

side face portions and a shock from the thickness direction, and, thus, the shock-absorbing properties of the entire electronic device-accommodating bag are maintained, and a shock to the electronic device is suppressed.

[0015] The electronic device-accommodating bag of the present invention may have the feature that the second side wall on the outer side on the shock-absorbing portion is positioned further outward than the fastener portion in a state where an electronic device is accommodated.

[0016] According to the above-described configuration, a shock can be received by the second side wall of the shock-absorbing portion positioned further outward than the fastener portion, and, thus, transmission of the shock to the electronic device from the fastener portion positioned close to the electronic device can be suppressed.

[0017] The electronic device-accommodating bag of the present invention may have the feature that the shock-absorbing portion and the attachment portion are made of a resin and formed in one piece.

[0018] In the case where the shock-absorbing portion is made of a resin, even when the shock-absorbing portion receives a shock, the shock is elastically absorbed, and transmission of the shock to the electronic device accommodated in the electronic device-accommodating bag is effectively suppressed.

[0019] The present invention is directed to a shock-absorbing member that is disposed along an entire outer peripheral edge portion of each side face portion of an electronic device-accommodating bag, the electronic device-accommodating bag including: a pair of side face portions; a back face portion that connects end portions on one side of the side face portions in an openable and closable manner; and a fastener portion that is attached to peripheries of the side face portions at a location excluding the back face portion; wherein a shock-absorbing portion that is formed so as to be hollow is provided along the entire outer peripheral edge portion of the side face portions.

[0020] In the case where this shock-absorbing member is used in the electronic device-accommodating bag, transmission of a shock to the electronic device accommodated in the electronic device-accommodating bag can be suppressed.

[0021] The shock-absorbing member of the present invention may have the feature that a side portion of the shock-absorbing portion integrally has an attachment portion extending in a direction parallel to the side face portions of the electronic device-accommodating bag, and is attached via the attachment portion to the electronic device-accommodating bag.

[0022] In the electronic device-accommodating bag of the present invention, the shock-absorbing portion is disposed along the entire periphery of the side face portions. The shock-absorbing portion is fixed to the outer periphery of the side face portion, is formed so as to be hollow along the entire periphery of the side face portion, and is made of a resin. Thus, the shock-absorbing properties of the entire electronic device-accommodating bag are high. Accordingly, even in the case where a shock is applied (e.g., the electronic device-accommodating bag is dropped) while carrying the electronic device-accommodating bag, the shock is hardly transmitted to the electronic device, such as a personal computer, accommodated inside, and, thus, the electronic device can be reliably protected.

BRIEF DESCRIPTION OF THE DRAWINGS

[0023]

FIG. 1 is a plan view of an electronic device-accommodating bag showing an embodiment of the present invention.

FIG. 2 is a bottom view of the electronic device-accommodating bag.

FIG. 3 is a side view of the electronic device-accommodating bag.

FIG. 4 is a front view of the electronic device-accommodating bag.

FIG. 5 is an entire vertical cross-sectional view of the electronic device-accommodating bag.

FIG. 6 is an enlarged vertical cross-sectional view of main portions of the electronic device-accommodating bag.

FIG. 7 is an enlarged cross-sectional view of a shock-absorbing member of the electronic device-accommodating bag.

FIG. 8 is a front view of the shock-absorbing member.

FIG. 9 is an enlarged cross-sectional view of a shock-absorbing member showing another embodiment.

FIG. 10 is an enlarged vertical cross-sectional view of main portions showing another embodiment.

DETAILED DESCRIPTION OF THE INVENTION

[0024] Hereinafter, an electronic device-accommodating bag according to an embodiment of the present invention will be described with reference to the drawings. The electronic device-accommodating bag of the embodiment of the present invention is mainly used to accommodate a notebook-sized personal computer.

[0025] FIG. 1 is a plan view of the electronic device-accommodating bag, FIG. 2 is a bottom view, FIG. 3 is a side view, FIG. 4 is a front view, FIG. 5 is a vertical cross-sectional view, FIG. 6 is an enlarged cross-sectional view of main portions, FIG. 7 is an enlarged cross-sectional view of a shock-absorbing member, and a FIG. 8 is a front view thereof.

[0026] As shown in FIGS. 1 to 4, an electronic device-accommodating bag 1 includes a pair of side face portions 2, a back face portion 3 that connects end portions on one side of the side face portions 2 in an openable and closable manner, a slide fastener (fastener portion)

4 that is attached to peripheries of the side face portions 2 at a location excluding the back face portion 3, and shock-absorbing portions 5.

[0027] Each of the side face portions 2 is formed substantially in the shape of a rectangle when viewed from the front, and, as shown in FIGS. 5 and 6, has a two-layer configuration including an outer cover 21 on the outer side and a shock-absorbing mat 22 on the inner side (side on which the personal computer P is accommodated) in a thickness direction B. The thickness direction B is the thickness direction of the electronic device-accommodating bag 1 and the thickness direction of the personal computer P held between the side face portions 2 (the shock-absorbing mats 22).

[0028] The outer cover 21 and the shock-absorbing mat 22 are bent at an outer peripheral edge portion 23 thereof in the thickness direction B, and the portions at the outer peripheral edge portion 23 are overlaid from the inside to the outside along a plane direction F (corresponding to the direction parallel to the side face portions). In this case, the plane direction F conceptually may include a vertical direction and a horizontal direction.

[0029] The slide fastener 4 attaches the side face portions 2 to each other in a freely detachable manner on their open end sides (the inner sides in the thickness direction B), and has an ordinary configuration. That is to say, the slide fastener 4 includes tape portions 41, elements 42, and a slider 43.

[0030] The tape portion 41 of the slide fastener 4 is overlaid on the outer side face of the outer peripheral edge portion 23 of the outer cover 21, and the end portions at the outer peripheral edge portion 23 overlaid from the inside to the outside along the plane direction F and the tape portion 41 of the slide fastener 4 are sewn up and integrated with each other at a sewn portion S1.

[0031] Here, in order to protect an end face 23a of the outer peripheral edge portion 23 and an end side 41a of the tape portion 41, a protective tape 6, the tape portion 41, and the outer peripheral edge portion 23 are sewn up and integrated with each other at the sewn portion S1 in a state where the end portions at the outer peripheral edge portion 23 and the end portion of the tape portion 41 are covered and protected by the protective tape 6 from the inner side in the thickness direction B.

[0032] Hereinafter, the configuration of the shock-absorbing portions 5 constituting shock-absorbing members will be described. Here, the shock-absorbing portions 5 and attachment portions 7 (described later) are symmetrical on the side face portion 2 on one side and the side face portion 2 on the other side, and, thus, these constituent elements are denoted by the same reference numerals in the following description.

[0033] The shock-absorbing portion 5 is disposed along the entire outer peripheral edge portion 23 on the outer side on each of the side face portions 2. The shock-absorbing portion 5 is made of a synthetic resin (in this case, a synthetic rubber, which is an example of a resin), and is formed so as to be hollow along the entire outer peripheral edge portion on the outer side on the side face portions 2.

[0034] More specifically, the shock-absorbing portion 5 has a pair of first side walls 51 that oppose each other in the thickness direction B, and a pair of second side walls 52 that are continued from the first side walls 51 and that oppose each other in a direction along the plane direction F, and is formed so as to have a rectangular cross-section (a rectangular cross-section of a square tube).

[0035] The first side walls 51 are arranged in parallel to each other in a direction along the plane direction F. The second side walls 52 are arranged in parallel to each other in a direction along the thickness direction B. The four corner portions of the shock-absorbing portion 5 are arc-shaped.

[0036] A wall-like rib 53 in a direction along the plane direction F is integrally formed in the internal space of the shock-absorbing portion 5, connecting opposing inner faces of the second side walls 52 of the shock-absorbing portion 5.

[0037] The rib 53 is disposed at the second side walls 52 at the center in the thickness direction B of the electronic device-accommodating bag 1. The wall thickness of the rib 53 is set to be smaller than the wall thickness of the first side walls 51 and the second side walls 52.

[0038] The attachment portion 7 is formed integrally with the shock-absorbing portion 5. In this embodiment, the shock-absorbing portion 5 and the attachment portion 7 form a shock-absorbing member, which is a shock-absorbing means. The attachment portion 7 and the shock-absorbing portion 5 are arranged along the entire outer peripheral edge portion 23 on the outer side. The attachment portion 7 is formed so as to have a substantially L-shaped cross-section including a leg strip 72 that extends from the first side wall 51 on the outer side toward the outer peripheral edge portion 23 and an attachment strip 71 that is bent from the end portion of the leg strip 72 toward the inner side in the thickness direction B. The bent portion is formed so as to be curved.

[0039] The wall thickness of the leg strip 72 is larger than the wall thickness of the attachment strip 71 as shown in FIGS. 7 and 8, and the attachment portion 7 is flexible. In particular, a continuous portion (bent portion) 73 between the leg strip 72 and the attachment strip 71 has an elastic restoring force that restores the attachment portion 7 to the L shape.

[0040] The attachment strip 71 of the attachment portion 7 is overlaid on the outer side on the outer peripheral edge portion 23 and sewn up via the outer peripheral edge portion 23 and a sewn portion S2, and, thus, the shock-absorbing portion 5 is integrally attached to the outer peripheral edge portion 23.

[0041] The shock-absorbing portion 5 and the attachment portion 7 as described above are obtained by subjecting a material to extrusion molding to obtain a long, integrally formed object and cutting the resulting object into a piece having a predetermined length, and are ar-

ranged along the entire outer peripheral edge portion 23 on the outer side.

[0042] In a state where the tape portions 41 of the slide fastener 4 are spread (a state where the personal computer P is accommodated), the second side wall 52 on the outer side is positioned further outward than the slide fastener 4. In other words, in a state where the tape portions 41 of the slide fastener 4 are spread, the surface position of the second side wall 52 is set such that the surface of the tape portion 41 (the elements 42) and surface 52a of the second side wall 52 differ in level by a predetermined height h.

[0043] Furthermore, a surface 51a of the first side wall 51 on the outer side and a surface 2a of the side face portion 2 (the outer cover 21) are substantially flush, or the surface 51a of the first side wall 51 on the outer side is positioned further inward than the surface 2a of the side face portion 2.

[0044] In this embodiment, the surface 51a of the first side wall 51 on the outer side is positioned further inward than the surface 2a of the side face portion 2, but the surface 51a of the first side wall 51 on the outer side may project further outward than the surface 2a of the side face portion 2.

[0045] Here, the reference numeral 8 in FIGS. 3 to 5 refers to a groove that is formed on the surface of the side face portion 2 on one side, and this groove 8 improves the design.

[0046] In the above-described configuration, when the side face portions 2 are opened about the back face portion 3, and the slide fastener 4 is closed such that the personal computer P is held between the side face portions 2, the shock-absorbing mats 22 are elastically deformed, and the personal computer P is accommodated in the electronic device-accommodating bag 1. At that time, the tape portions 41 of the slide fastener 4 are spread between the sewn portions S1, and are arranged substantially parallel to the thickness direction B.

[0047] When the personal computer P is accommodated in the electronic device-accommodating bag 1, the personal computer P can be protected by the shock-absorbing mats 22 even in the case where a shock is applied from the side of the side face portions 2.

[0048] In the electronic device-accommodating bag 1 according to this embodiment, in a state where the tape portions 41 of the slide fastener 4 are spread, the surface position of the second side wall 52 is set such that the surface of the tape portion 41 (the elements 42) and the surface 52a of the second side wall 52 differ in level by the predetermined height h. Accordingly, for example, in the case where the electronic device-accommodating bag 1 is dropped while carrying the electronic device-accommodating bag, the second side walls 52 on the outer side on the shock-absorbing portions 5 are the first to come into contact with a floor face or the like. Furthermore, the shock-absorbing portions 5 are made of a synthetic resin and formed so as to be hollow, and are easily elastically deformed, and, thus, the shock-absorbing properties are high.

[0049] Accordingly, even in the case where a shock is applied (e.g., the electronic device-accommodating bag is dropped) to the extent that the shock-absorbing portions 5 are deformed, the shock-absorbing portions 5 are elastically deformed, and, thus, the shock is absorbed, and the shock is hardly transmitted to the personal computer accommodated inside. Furthermore, the shock-absorbing portions 5 are formed so as to have a rectangular cross-section, and, thus, the surfaces 52a, which have a flat face, are the first to come into contact with a floor face or the like, for example, when the electronic device-accommodating bag 1 is dropped. Then, the shock is received with a wide area, and, thus, the shock-absorbing properties are accordingly high, and transmission of the shock to the personal computer P can be suppressed.

[0050] Moreover, the wall-like rib 53 in a direction along the plane direction F is integrally formed in the internal space of the shock-absorbing portions 5, connecting opposing inner faces of the second side walls 52 of the shock-absorbing portion 5. Accordingly, when a shock is applied to the shock-absorbing portions 5, the rib 53 is elastically deformed, and, thus, the shock-absorbing properties are improved, and transmission of the shock to the personal computer P can be suppressed.

[0051] Moreover, the shock-absorbing portion 5 is attached via the flexible attachment portion 7 to the outer peripheral edge portion 23. Accordingly, the shock-absorbing properties are also improved by warping (elastically deforming) of the attachment portions 7, enabling transmission of a shock to the personal computer P to be suppressed.

[0052] Furthermore, in this embodiment, the surface position of the second side wall 52 is set such that the surface of the tape portion 41 and the surface 52a of the second side wall 52 differ in level by the predetermined height h, the surface 51a of the first side wall 51 on the outer side and the surface 2a of the side face portion 2 are substantially flush, or the surface 51a of the first side wall 51 on the outer side is positioned further inward than the surface 2a of the side face portion 2, a pair of such first side walls 51 and a pair of such second side walls 52 are arranged, and the shock-absorbing portions 5 are formed in the shape of square tubes.

[0053] Accordingly, a shock from the plane direction F parallel to the side face portions 2 and shocks from the thickness direction B are absorbed, the shock-absorbing properties of the entire electronic device-accommodating bag 1 are secured, and a shock to the personal computer P can be reliably suppressed.

[0054] The present invention is not limited to the foregoing embodiment, and various modifications are possible within a range not departing from the gist of the present invention. Furthermore, specific configurations of each constituent element are not limited to those in the foregoing embodiment.

[0055] For example, FIG. 9 shows another example of the shock-absorbing member. In the embodiment shown

in FIGS. 1 to 8, the shock-absorbing portion 5 is formed so as to have a substantially rectangular cross-section. Conversely, in the example shown in the cross-sectional view in FIG. 9, a shock-absorbing portion 50 is formed in the shape of a circular tube, and a rib 530 is formed in a radial direction of the shock-absorbing portion 50. In this case, an outer circumferential face 50a of the shock-absorbing portion 50 is set so as to differ in level from the surface of the tape portion 41 (or the elements 42) by a predetermined height h. The other constituent elements in the configuration are the same as those in the configuration shown in FIGS. 1 to 8, and, thus, these constituent elements are denoted by the same reference numerals.

[0056] In the shock-absorbing portion 50 having a circular tube-shaped cross-section as shown in FIG. 9, there may be a case in which the area by which a shock is received is smaller than that of a shock-absorbing portion having a square tube-shaped cross-section, but, when a shock that deforms the shape of a circular tube acts, the deformation absorbs the shock, and transmission of the shock to the personal computer P can be suppressed.

[0057] FIG. 10 shows a cross-sectional view of another embodiment. FIG. 10 is a cross-sectional view shown in comparison with FIG. 6. The configuration of the embodiment shown in FIG. 10 is different from that in FIGS. 1 to 8 in that the attachment portion 7 is formed so as to have a substantially L-shaped cross-section including a leg strip 72 that extends from the first side wall 51 on the inner side toward the outer peripheral edge portion 23 and an attachment strip 71 that is bent from the end portion of the leg strip 72 toward the outer side in the thickness direction B.

[0058] This embodiment is as in the foregoing embodiments in that the attachment strip 71 of the attachment portion 7 is overlaid on the outer side on the outer peripheral edge portion 23 and sewn up via the outer peripheral edge portion 23 and the sewn portion S2, and, thus, is integrally attached to the outer peripheral edge portion 23. The other constituent elements in the configuration are the same as those in the foregoing embodiments, and, thus, these constituent elements are denoted by the same reference numerals, and a description thereof is omitted. Furthermore, actions and effects that are the same as those in the embodiment shown in FIGS. 1 to 8 are achieved.

Claims

1. An electronic device-accommodating bag (1), comprising:

   a pair of side face portions (2);
   a back face portion (3) for connecting end portions of the side face portions (2) in an openable and closable manner;
   a fastener portion (4) that is attached to peripheries of the side face portions (2) at a location excluding the back face portion (3); and
   a shock-absorbing portion (5) that is disposed along an entire outer peripheral edge portion (23) of the side face portions (2).

2. Bag according to claim 1, wherein the shock-absorbing portion (5) is formed so as to define a hollow space along the entire outer peripheral edge portion (23) of the side face portions (2).

3. Bag (1) according to claim 2, wherein a rib (53) extending in a direction parallel to the side face portions (2) is formed in said hollow space of the shock-absorbing portion (5) so as to connect opposing inner faces of the shock-absorbing portion (5).

4. Bag (1) according to one of the claims 1 to 3, wherein a side portion of the shock-absorbing portion (5) integrally has an attachment portion (7) extending in a direction parallel to the side face portions (2), and the shock-absorbing portion (5) is fixed via the attachment portion (7) to the outer peripheral edge portion (23) of the side face portions (2).

5. Bag (1) according to any one of claims 1 to 4, wherein the shock-absorbing portion (5) has a pair of first side walls (51) that oppose each other and define the thickness of said portion (5), and a pair of second side walls (52) that are continued from the first side walls (51) and that oppose each other in a direction parallel to the side face portions (2), and the shock-absorbing portion (5) is formed so as to have a rectangular cross-section.

6. Bag (1) according to claim 5, wherein the second side wall (52) arranged on the outer side on the shock-absorbing portion (5) is adapted to be positioned further outward than the fastener portion (4) in a state where an electronic device is accommodated in the bag (1).

7. Bag (1) according to any one of claims 1 to 6, wherein the shock-absorbing portion (5) and the attachment portion (7) are made of a resin and formed in one piece.

8. A shock-absorbing member for the electronic device-accommodating bag (1) according to any of claims 1 to 7, that is disposable along an entire outer peripheral edge portion (23) of each side face portion (2) of the electronic device-accommodating bag (1), comprising a hollow shock-absorbing portion (5) to be disposed along the entire outer peripheral edge portion (23) of the side face portions (2).

9. The shock-absorbing member according to claim 8,

further comprising an attachment portion (7) extending in a direction parallel to the side face portions (2) of the electronic device-accommodating bag (1), the shock-absorbing portion (5) being formed integrally with the attachment portion (7), and the shock-absorbing portion (5) being attachable via the attachment portion (7) to the electronic device-accommodating bag (1).

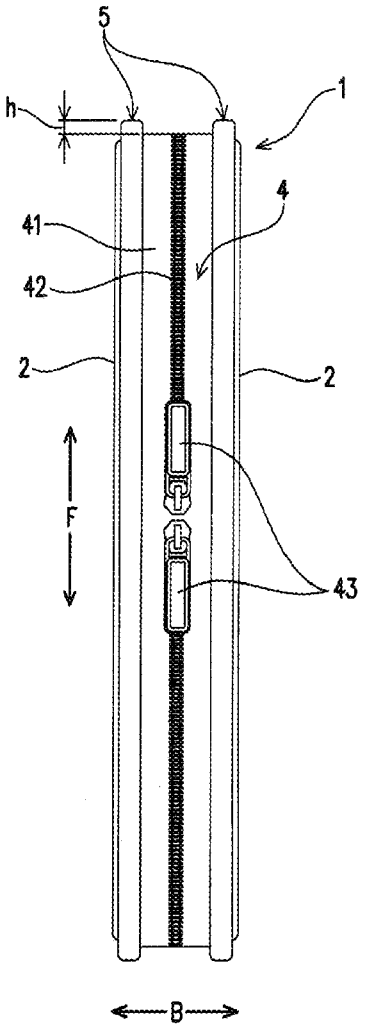

Fig. 1

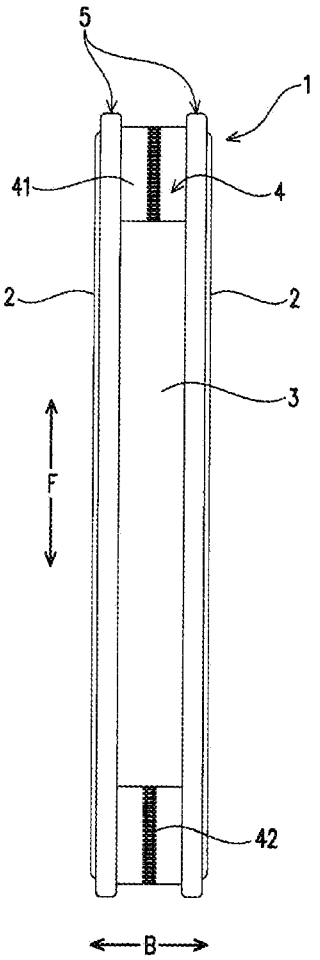

Fig. 2

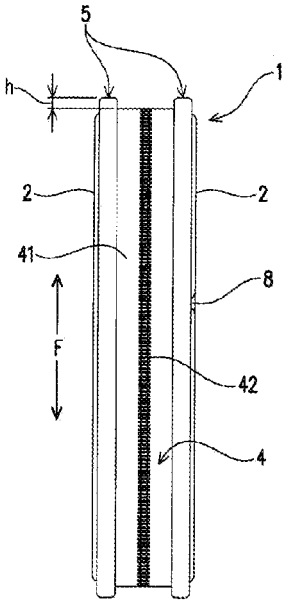

Fig. 3

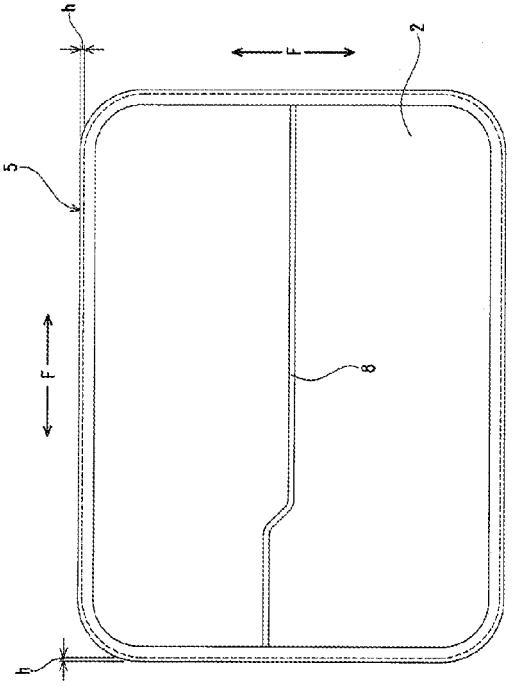

Fig. 4

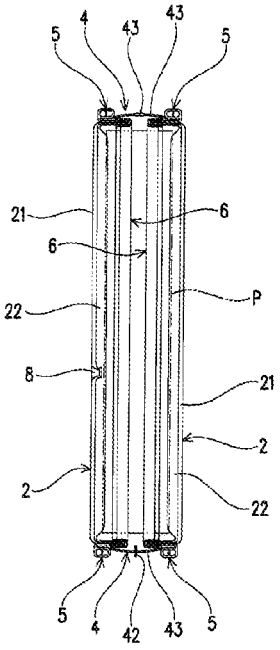

Fig. 5

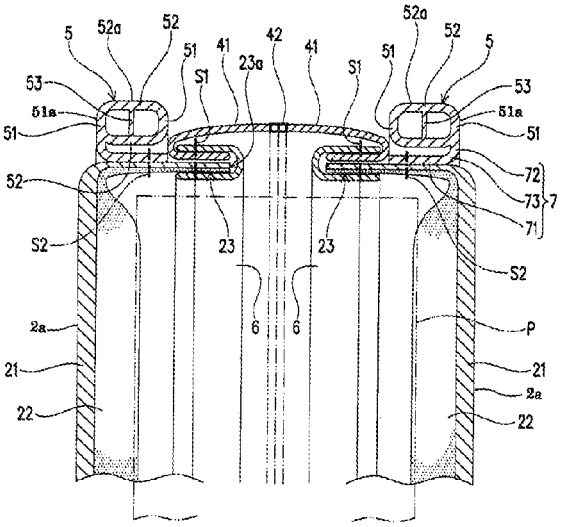

Fig. 6

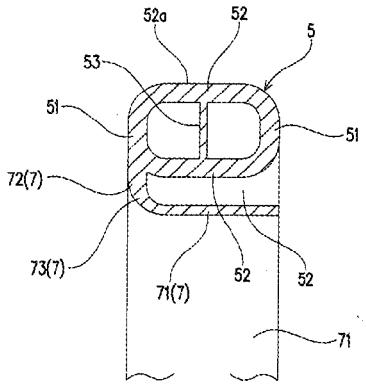

Fig. 7

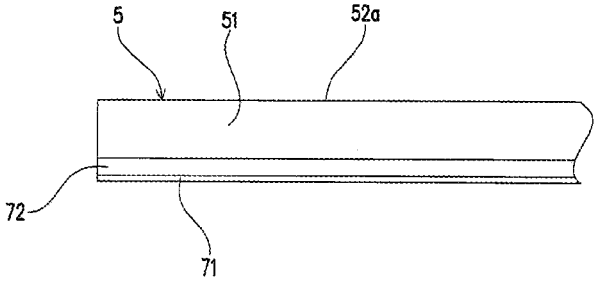

Fig. 8

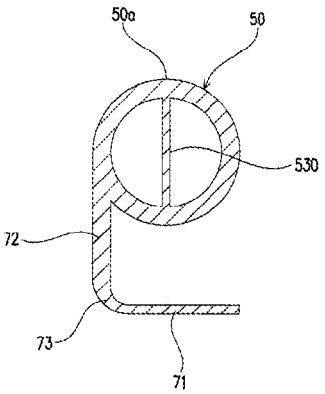

Fig. 9

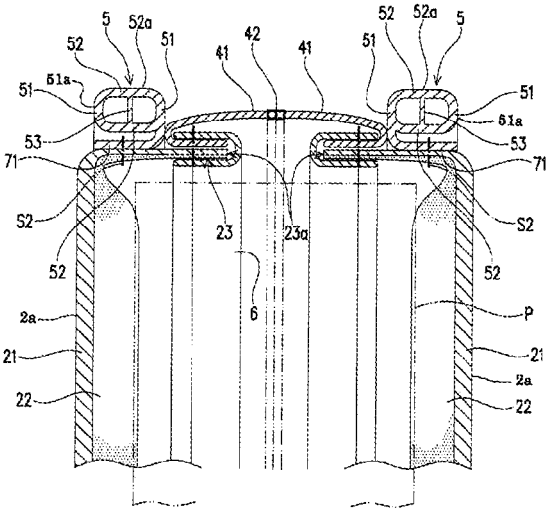

Fig. 10

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EUROPEAN SEARCH REPORT

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Place of search	Date of completion of the search	Examiner
The Hague	19 November 2010	Witkowska-Piela, A

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