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(54) **BODY SUPPORTS AND COVERS**

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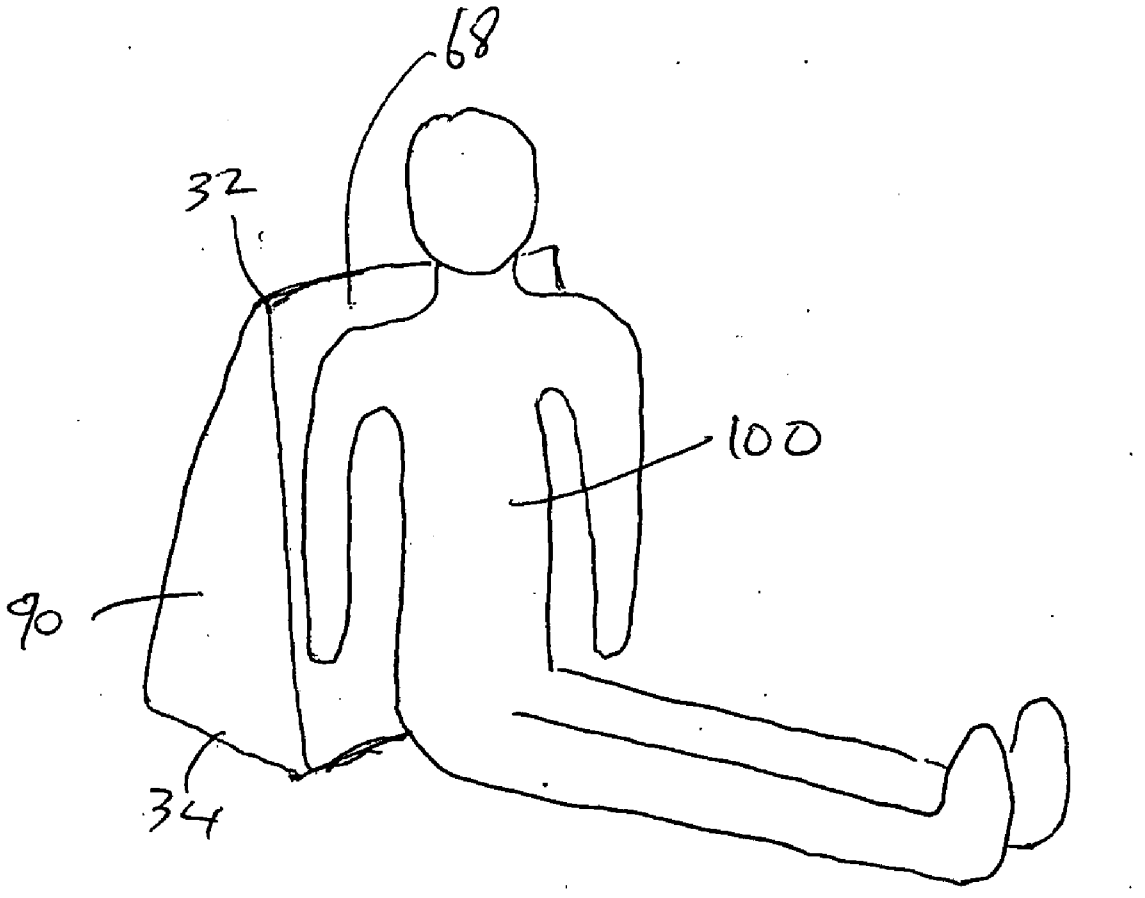
(52) **U.S. Cl.** **5/633**; 5/636; 5/640

(57) **ABSTRACT**

A support device includes a support structure having a wedge configuration, and a cover comprising a case, the case having a lumen sized to accommodate the support structure. A cover of a support structure includes a case having a lumen sized for accommodating a support structure, the case having a first end, a second end, a top side extending between the first and the second ends, and a bottom side, wherein a first distance between the top side and the bottom side at the first end is shorter than a second distance between the top side and the bottom side at the second end.



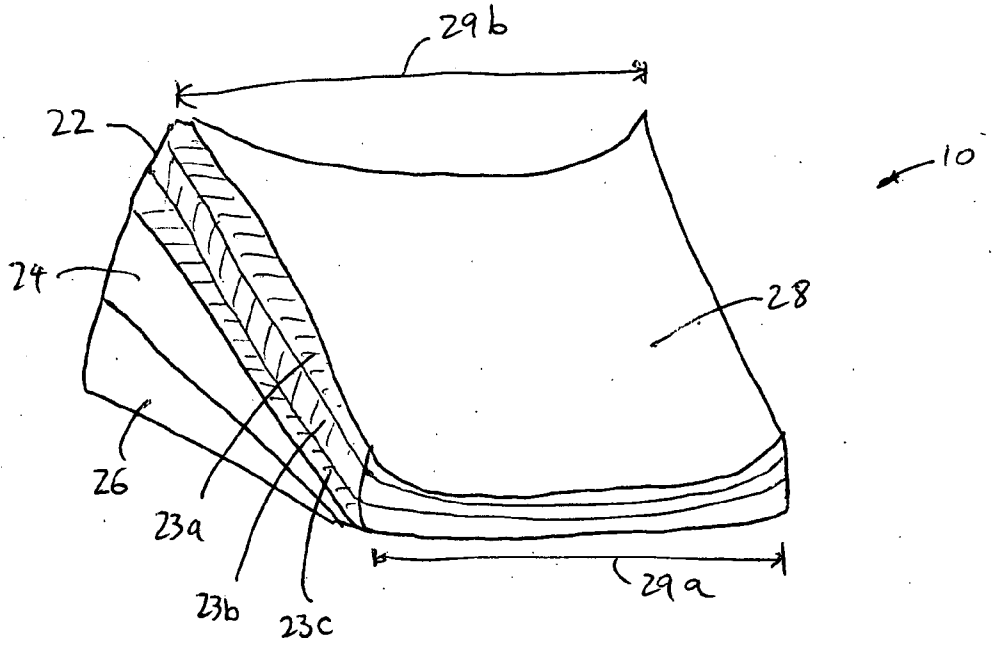


FIG. 1B

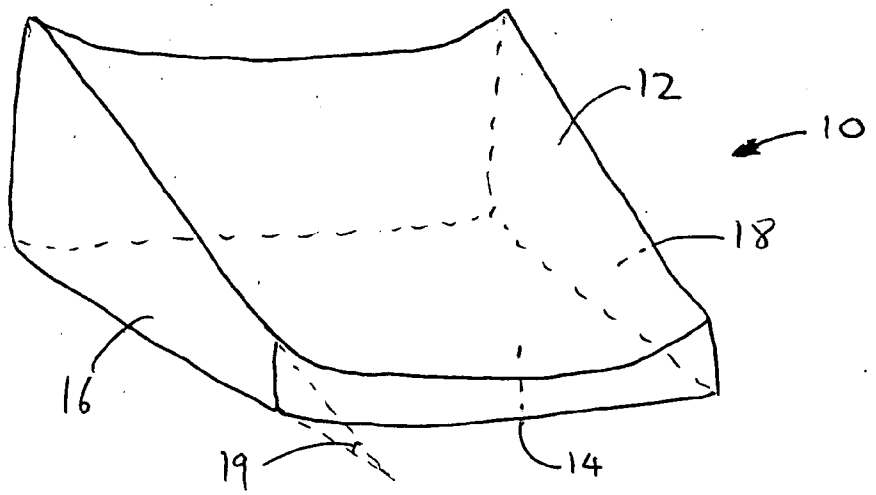


FIG. 1A

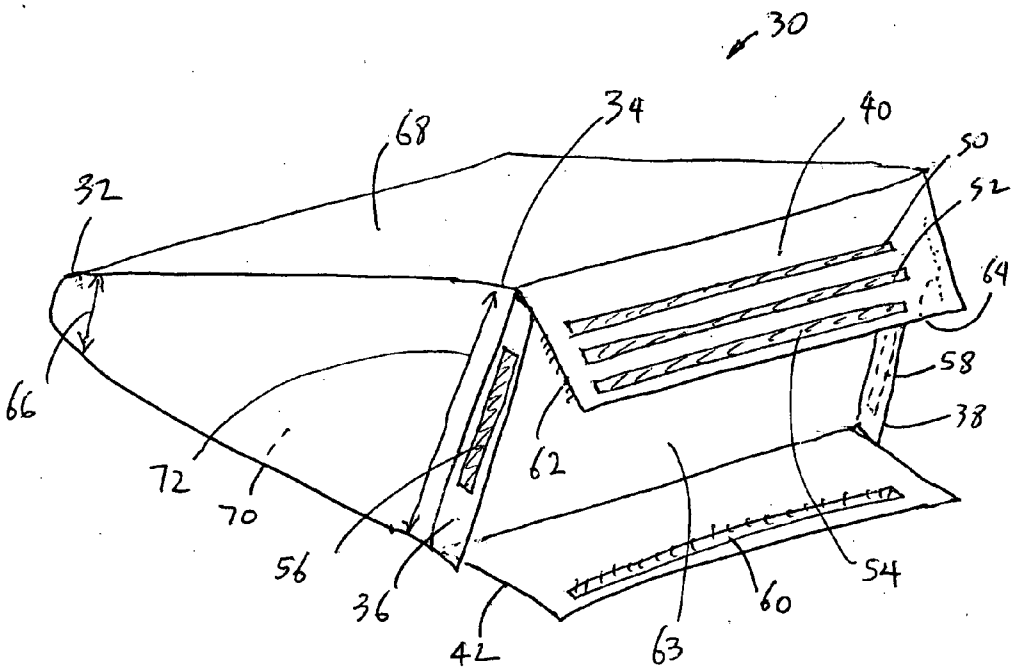

30
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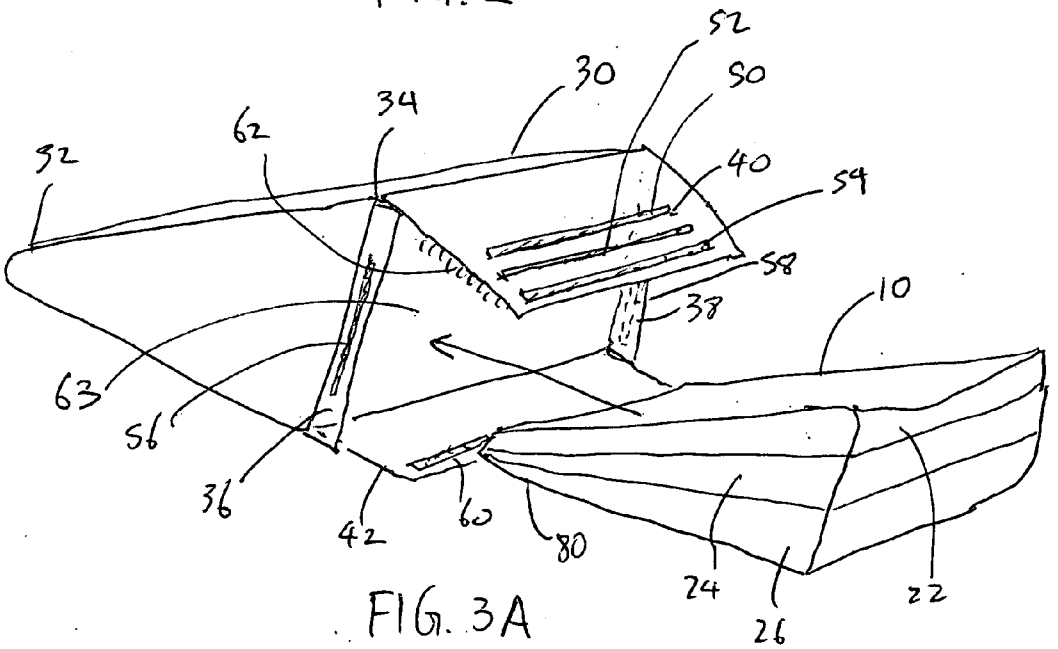
FIG. 2


52
30
50
34
62
32
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38
10
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36
42
60
80
24
26
22

FIG. 3A

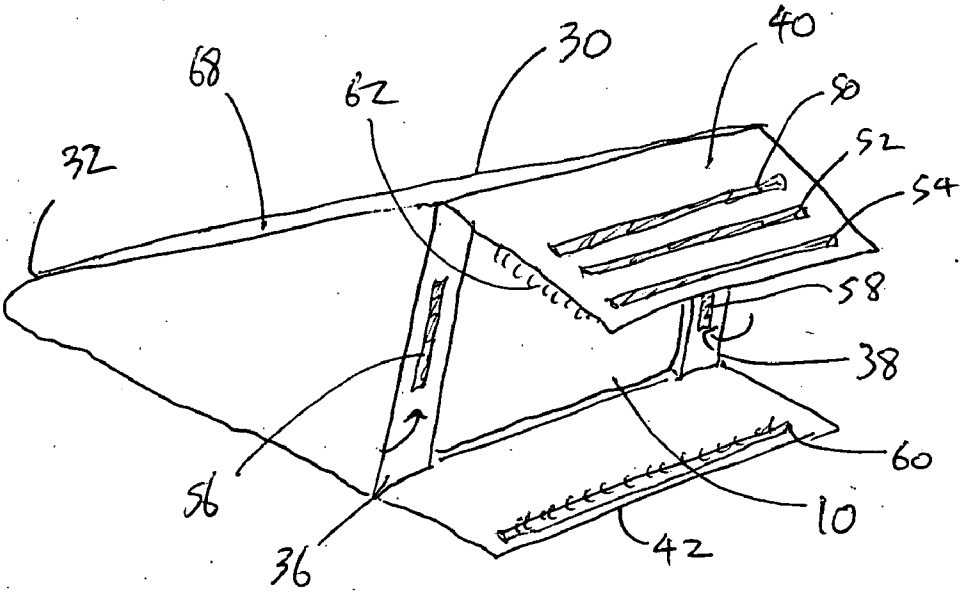
68
62
30
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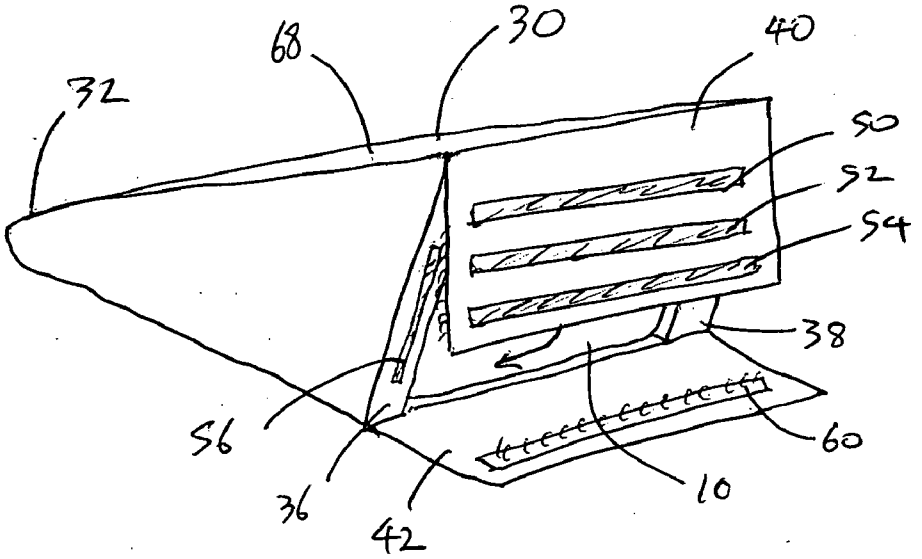
FIG. 3B


68
30
40
32
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52
54
38
56
60
36
42
10

FIG. 3C

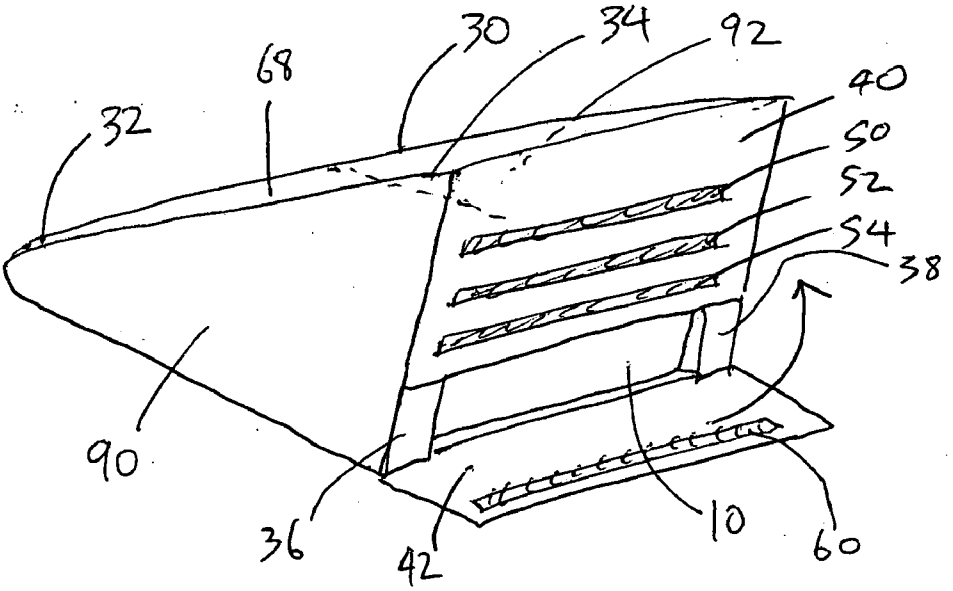

FIG. 3D

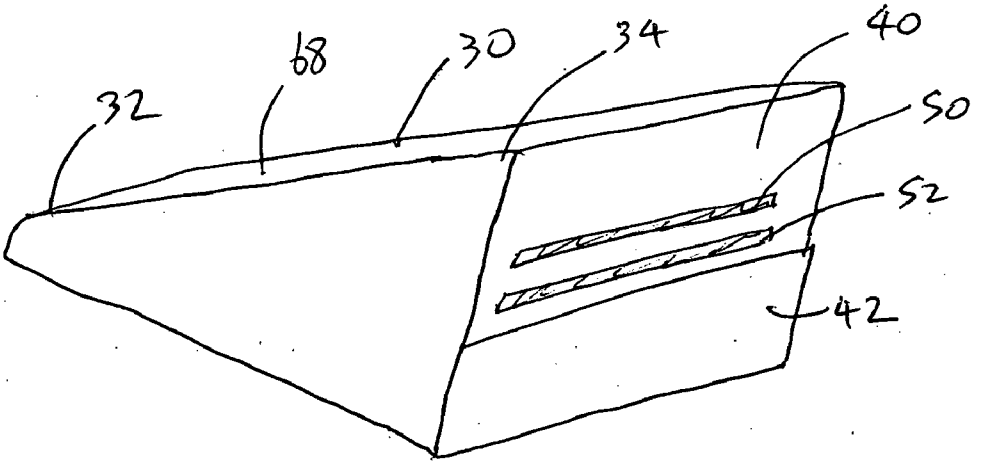

FIG. 3E

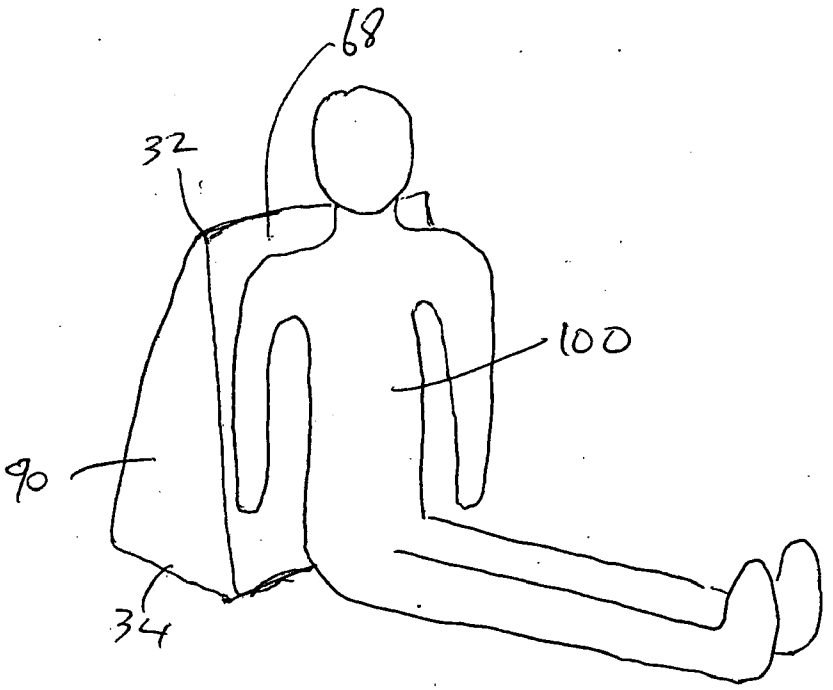

FIG. 3F

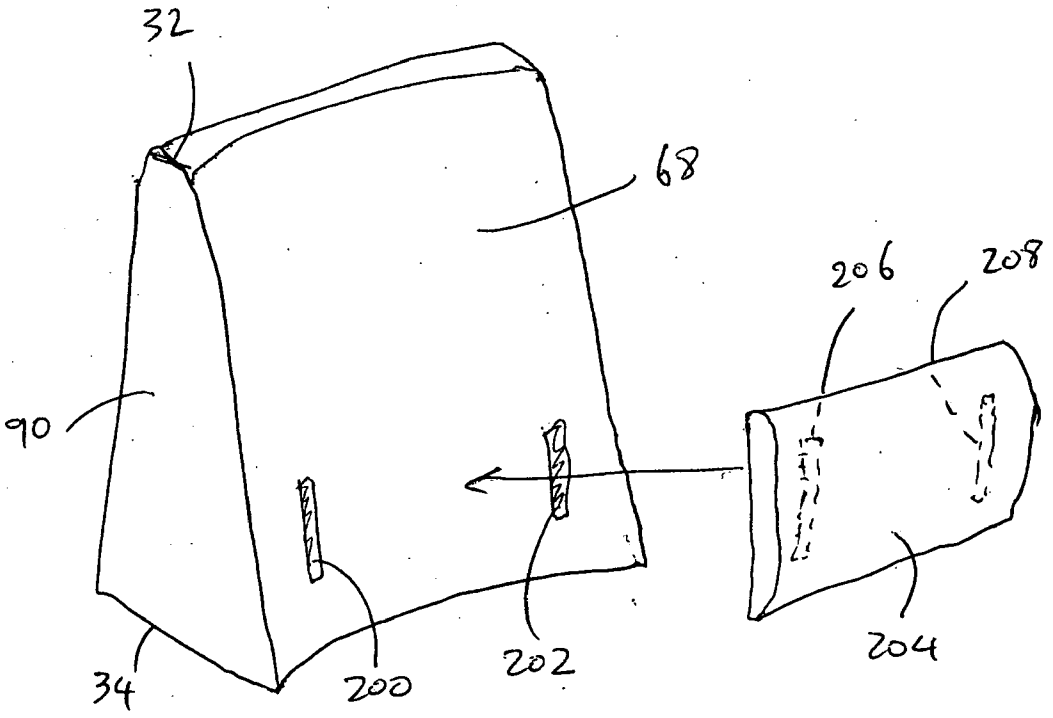

FIG. 4

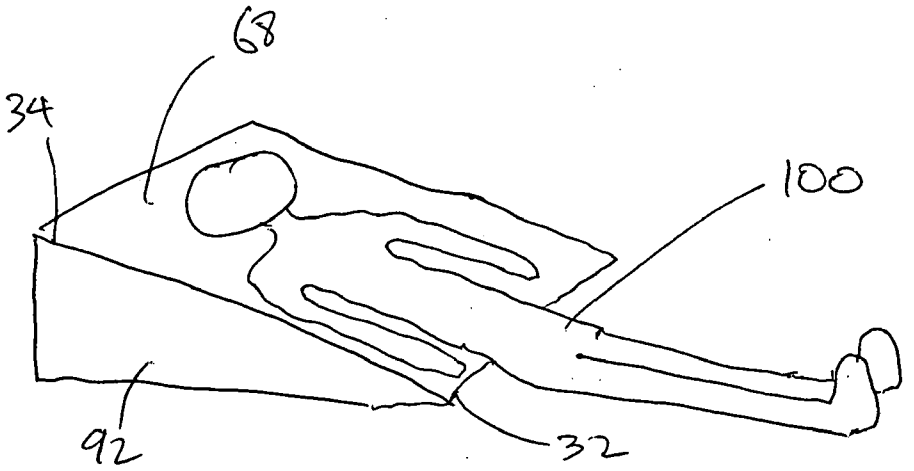

FIG. 3G

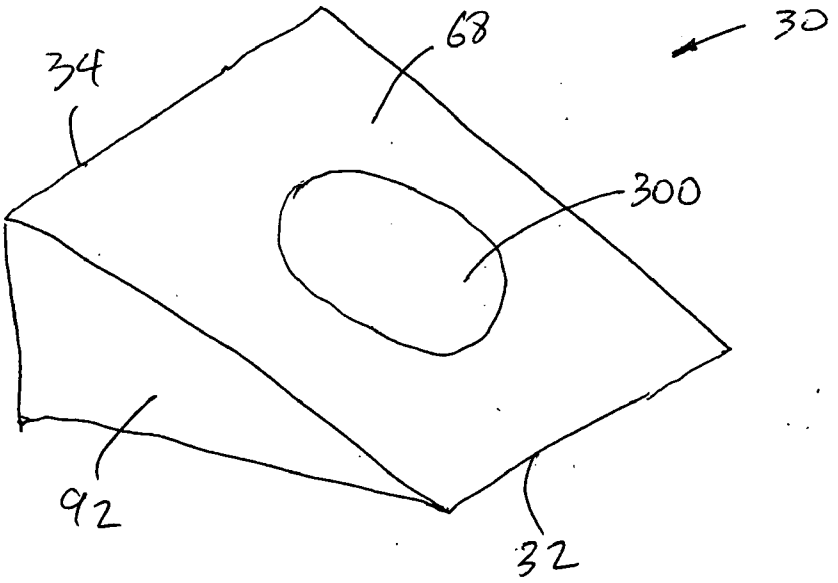

FIG. 5

BODY SUPPORTS AND COVERS

RELATED APPLICATION DATA

[0001] This application claims the benefit of U.S. Provisional Patent Application Ser. No. 60/562,962, filed on Apr. 16, 2004, which is incorporated by reference herein in its entirety.

BACKGROUND

[0002] 1. Field of the Invention

[0003] This invention relates to orthopedic devices, and more specifically, to support devices for supporting a body part, and covers for such support devices.

[0004] 2. Background of the Invention

[0005] Orthopedic support devices are designed to provide users with support and alignment of certain body parts, such as a head, a neck, or a back.

[0006] A multitude of different orthopedic back support device designs exist, and many of these devices use resilient foam materials to provide the necessary support. Flexible polyurethane foams are commonly used in the manufacture of these support devices, as are viscoelastic memory foams. However, due to natural oxidation, the foam making up the support device may result in discoloration of the support device. Also, due to repeated use of the support device, the support device may deteriorate (e.g., may be stained or damaged due to normal wear and tear). Sometimes a user using the support device may be a patient who suffers from an illness or chronic condition. If the support device deteriorates (e.g., from stains, discoloration, or normal tear and wear), its appearance may not be conducive to raising the patient's spirits.

SUMMARY

[0007] In accordance with some embodiments, a support device includes a support structure having a wedge configuration, and a cover comprising a case, the case having a lumen sized to accommodate the support structure.

[0008] In accordance with other embodiments, a cover of a support structure includes a case having a lumen sized for accommodating a support structure, the case having a first end, a second end, a top side extending between the first and the second ends, and a bottom side, wherein a first distance between the top side and the bottom side at the first end is shorter than a second distance between the top side and the bottom side at the second end.

[0009] In accordance with other embodiments, a cover of a support structure includes a case having a lumen sized for accommodating the support structure, and an opening in communication with the lumen, a first flap located next to the opening, a second flap located next to the opening, and a connection device for allowing the second flap to be secured to a first location on the first flap, and for allowing the second flap to be secured to a second location on the first flap.

[0010] Other aspects and features of the invention will be evident from reading the following description of the embodiments.

BRIEF DESCRIPTION OF THE DRAWINGS

[0011] The drawings illustrate the design and utility of embodiments, in which similar elements are referred to by common reference numerals. In order to better appreciate how advantages and objects of the embodiments are obtained, a more particular description of the embodiments will be illustrated in the accompanying drawings.

[0012] **FIG. 1A** illustrates a support structure in accordance with some embodiments;

[0013] **FIG. 1B** illustrates a support structure in accordance with other embodiments;

[0014] **FIG. 2** illustrates a cover for use with either of the support structures of **FIGS. 1A and 1B**; and

[0015] **FIG. 3A-3G** illustrate a method of using the cover of **FIG. 2**;

[0016] **FIG. 4** illustrates a cover in accordance with other embodiments; and

[0017] **FIG. 5** illustrates a cover in accordance with other embodiments.

DETAILED DESCRIPTION OF THE EMBODIMENTS

[0018] Various embodiments are described hereinafter with reference to the figures. It should be noted that the figures are not drawn to scale and elements of similar structures or functions are represented by like reference numerals throughout the figures. It should also be noted that the figures are only intended to facilitate the description of specific embodiments. They are not intended as an exhaustive description of the invention or as a limitation on the scope of the invention. In addition, an aspect described in conjunction with a particular embodiment is not necessarily limited to that embodiment and can be practiced in any other embodiments.

[0019] **FIG. 1A** illustrates a body support structure **10** in accordance with some embodiments. The body support structure **10** has a top surface **12** for supporting a body part (such as a head, a neck, or a back), a bottom surface **14** opposite from the top surface **12**, a first side **16**, and a second side **18**. In the illustrated embodiments, the top surface **12** forms an angle **19** with the bottom surface **14**, thereby forming a wedge configuration for the support structure **10**. The body support structure **10** can be made from a variety of materials, such as a polyurethane foam, a viscoelastic memory foam, and the like. In other embodiments, the top surface **12** of the support structure **10** can have one or more protrusions (e.g., for lumbar support, or support of head/neck). For example, in some embodiments, the support structure **10** can have one or more mounds/rows built within it, so that the top surface **12** will have one or more protrusions.

[0020] In other embodiments, instead of a one-piece wedge configuration, the body support structure **10** can have a plurality of wedges **(FIG. 1B)**, such as those disclosed in U.S. Pat. No. 4,853,993, the entire disclosure of which is hereby incorporated by reference. The body support structure **10** of **FIG. 1B** has a support piece **22** having a support surface **28**, a first wedge (insert) **24**, and a second wedge (insert) **26**. The first and/or the second wedges **24**, **26** can be

selectively decoupled from the support piece **22** to change a position (e.g., an inclination angle) of the body support structure **10**. In other embodiments, the body support structure **10** can have other numbers of wedges. The support piece **22** and the wedges **24**, **26** can be made from a variety of materials, such as a polyurethane foam, a viscoelastic memory foam, and the like.

[**0021**] In the illustrated embodiments, the support piece **22** has three layers **23***a*-**23***c* made from different materials. For examples, the layers **23***a*-**23***c* can be made from foams having different densities or elasticity. In some embodiments, any of the layers **23***a*-**23***c* can be made from a memory foam. Other materials known in the art of body support can be used to construct any of the layers **23***a*-**23***c*. In other embodiments, instead of having three layers **23***a*-**23***c,* the support piece **22** can include less than three layers **23** or more than three layers **23**. In the illustrated embodiments, the support piece **22** has a width **29***a* at a first end that is approximately the same as a width **29***b* at a second end. In other embodiments, the width **29***a* is less than the width **29***b,* thereby creating a tapered profile (e.g., resembling a shape of a trapezoid) for the support surface **28**. The support piece **22** can have other shapes and configurations in other embodiments. For example, in some embodiments, the support structure **10** can have one or more mounds/rows built within it, so that the top surface **12** will have one or more protrusions (e.g., for lumbar support, or support of head/neck).

[**0022**] **FIG. 2** shows a cover **30** for a support structure in accordance with some embodiments. The cover **30** is a case having a lumen **63** for accommodating a support structure, and can be made from a variety of materials, such as cotton, nylon, sheepskin, wool, velour, leather, etc. In the illustrated embodiments, the cover **30** is sized for use with the body support structure **10** of **FIG. 1A** or **FIG. 1B**. Alternatively, the cover **30** can be sized to accommodate other support structures. The cover **30** includes a first end **32**, a second end **34**, and a plurality of flaps **36**, **38**, **40**, **42** coupled to the-second end **34**. As shown in the figure, a first distance **66** between a top side (surface) **68** and a bottom side (surface) **70** at the first end **32** is shorter than a second distance **72** between the top side **68** and the bottom side **70** at the second end **34**, thereby creating a smaller profile for the first end **32** than that of the second end **34**. Such configuration allows the cover **30** to house a support structure having a wedge configuration. The flaps **36**, **38** (side flaps) include loop Velcros **56**, **58**, respectively. The flap **40** (top flap) includes three strips of loop Velcros **50**, **52**, **54** on one surface, and two side hook Velcros **62**, **64** on a second surface. The flap **42** (bottom flap) includes a strip of hook Velcro **42** for selectively attaching one of the loop Velcros **50**, **52**, **54** on the top flap **40**. As is understood by those skilled in the art, a loop Velcro refers to a female portion of a Velcro®, and a hook Velcro refers to a male portion of a Velcro®. In other embodiments, instead of using Velcros, other types of hook and loop fasteners can be used.

[**0023**] In other embodiments, instead of having four flaps **36**, **38**, **40**, **42**, the cover **30** can have other numbers of flaps. For example, in other embodiments, the cover **30** does not have flaps **36**, **38**. In alternative embodiments, the cover **30** has only one flap that covers the entire opening at the second end **34** of the cover **30**. Also, in other embodiments, the flaps of the cover **30** can have folding configurations that are different from that shown.

[**0024**] It should be noted that the manner in which the flaps **36**, **38**, **40**, **42** are secured to each other should not be limited by the example discussed previously, and that the flaps **36**, **38**, **40**, **42** can be secured by connection(s) having other configurations. For example, in other embodiments, the use of the loop Velcros and the hook Velcros can be reversed. Also, instead of having the number of Velcro strips shown, in other embodiments, any of the flaps **36**, **38**, **40**, **42** can have other numbers of Velcros (male or female portions) on either or both sides of the respective flaps. For example, in other embodiments, instead of having three Velcros **50**, **52**, **54** on the flap **40**, the flap **40** can include other numbers of Velcros. In some embodiments, the flap **40** includes a single Velcro having a surface area that is larger than the surface area of the Velcro **60**. Such configuration allows the Velcro **60** to be secured at different locations on the single Velcro, to thereby accommodate different sizes of the body support structure **10**. In further embodiments, instead of having elongated shapes, the Velcro(s) on the flaps **36**, **38**, **40**, **42** can have other shapes. Furthermore, instead of using Velcros, in other embodiments, the cover **30** can have other types of securing mechanisms, such as one or more safety pins, one or more snaps, one or more zippers, or one or more ties/strings.

[**0025**] During use, the wedged-shape body support structure **10** is inserted into the lumen **63** of the cover **30** (**FIG. 3A**). In particular, the narrower portion **80** of the support structure **10** is inserted into the lumen **63** first such that the narrower portion **80** of the support structure **10** is inserted first so that it can be fitted within the first end **32** of the cover **30**. Next, the side flaps **36**, **38** are folded to at least partially close an opening of the cover **30** (**FIG. 3B**). Next, the top flap **40** is folded to further close the opening of the cover **30** (**FIG. 3C**). After the top flap **40** is folded, the side hook Velcros **62**, **64** are secured to the loop Velcros **56**, **58**, respectively. Next, the bottom flap **42** is folded such that the hook Velcro **60** is secured to the loop Velcro **54** (**FIG. 3D**). As a result, the support structure **10** is completely covered by the cover **30** (**FIG. 3E**). The covered support structure **10** is then oriented in the position shown in **FIG. 3F** for supporting a back of a user **100**. In other embodiments, the covered support structure **10** can also be used to support a user's back and/or head in other orientation. For example, in some embodiments, the covered support structure **10** can be oriented in the position shown in **FIG. 3G** for supporting a back and/or head of the user **100**. In some embodiments, if one or more of the flaps **36**, **38**, **40**, **42** are not secured, the unsecured flap(s) can be tucked underneath the support structure **10**. Also, in further embodiments, any of the flaps can be tucked between a surface of the cover **30** and the support structure **10**.

[**0026**] In some embodiments, if the support structure **10** of **FIG. 1B** is used with the cover **30**, one or both of the wedges **24**, **26** can be removed and are not inserted into the cover **30**. In such cases, the Velcro **60** can be secured to either the Velcro **50**, or the Velcro **52**, with portion of the sides **90**, **92** of the cover **30** folded inwardly. In other embodiments, at least a portion of each of the sides **90**, **92** of the cover **30** can be made from a highly elastic material, such as spandex, for allowing the sides **90**, **92** to stretch.

Such allows the cover **30** to accommodate support structures having different sizes and shapes without having to fold the sides **90**, **92**. For example, if the number of wedges (e.g., wedge **24**, **26**) changes, the cover **30** can adjust itself to fit the support structure **10**. Also, in the illustrated embodiments, the distance between the Velcro strips **50**, **52**, and the distance between the Velcro strips **52**, **54** correspond to the respective thicknesses of the wedges **24**, **26**. For example, if the wedges **24**, **26** have equal thicknesses, the distance between the Velcro strips **50**, **52** and the distance between the Velcro strips **52**, **54** would be equal. Alternatively, if the wedges **24**, **26** have different thicknesses, the distance between the Velcro strips **50**, **52** and the distance between the Velcro strips **52**, **54** would be different.

[**0027**] Providing the cover **30** for the body support structure **10** has many benefits. First, it provides a decorative appearance for the support structure **10**. For example, different covers **30** can be made from fabrics with different textures and having different colors (black, blue, red, tan, white, etc.), thereby allowing the covers **30** to fit well with different decors of rooms (e.g., for aesthetic purpose). A user can also change the cover **30** readily for variety. Secondly, the cover **30** may provide therapeutic effect for a user. A user may use the support structure **10** because he/she has an illness or chronic condition. If the support structure **10** deteriorates (e.g., from stains, or discoloration of foam due to natural oxidation) its appearance may not be conducive to raising one's spirits. In such cases, the cover **30** provides a colorful or otherwise attractive appearance for the support structure **10**, thereby raising a user's spirit. The cover **30** also protects the support structure **10** from normal wear and tear, and provides at least some protection against stains. In addition, the cover **30** keeps the support structure **10** clean, and can be removed for washing or dry cleaning. Further, the cover **30** can be used to carry the support structure **10**. For example, if the body support structure **10** of **FIG. 1B** is used, the cover **30** keeps all the components (the support piece **22**, and the wedges **24**, **26**) of the support structure **10** together while they are being carried or transported.

[**0028**] **FIG. 4** illustrates a variation of the cover **30** in accordance with other embodiments. As shown in **FIG. 4**, the cover **30** further includes two loop Velcros **200**, **202** secured to the top surface **68** of the cover **30**. The Velcros **200**, **202** allows a pillow **204** to be detachably secured to the cover **30**. In the illustrated embodiments, the pillow **204** includes two hook Velcros **206**, **208**, which can be secured against the VeIcros **200**, **202**, respectively, thereby securing the pillow **204** against the cover **30**. In other embodiments, instead of Velcros, the securing mechanism for securing the pillow **204** against the cover **30** can be one or more buttons, one or more strings/ties, one or more pins, one or more snaps, and one or more zippers. Also, in other embodiments, instead of the rectangular shape shown, the pillow **204** can have different shapes, such as a cylindrical shape, a rounded shape, an elliptical shape, or a customized shape. In further embodiments, instead of the pillow **204**, the securing mechanism on the surface **68** of the cover **30** can be used to secure other accessories, such as a back support, to the cover **30**. In yet further embodiments, instead of placing the securing mechanism (e.g., Velcros **200**, **202**) on the surface **68** of the cover, the securing mechanism can be secured to the underside of the surface **68**. In such cases, the pillow **204** or another accessory can be placed inside the cover **30**, and be secured to the interior surface of the cover **30**

[**0029**] **FIG. 5** illustrates a variation of the cover **30** in accordance with other embodiments. The cover **30** includes a flexible portion **300** at the surface **68**. The flexible portion **300** can be made from a flexible material, such as spandex, which allows the portion **300** to flex. Such configuration allows the cover **30** to be used to cover a support structure having an expandable bladder. For example, the support structure **10** discussed previously can include an expandable bladder, which allows the support structure **10** to have different degrees of firmness (depending on the pressure within the bladder). The bladder will also change the shape and profile of the support structure **10**. In such cases, the portion **300** will accommodate the shape of the support structure **10** as the bladder is inflated to different degrees. In other embodiments, the portion **300** can have different sizes and shapes, and can be located at other positions at the cover **30**.

[**0030**] Although particular embodiments have been shown and described, it will be understood that it is not intended to limit the present inventions to the preferred embodiments, and it will be obvious to those skilled in the art that various changes and modifications may be made without departing from the spirit and scope of the present inventions. The specification and drawings are, accordingly, to be regarded in an illustrative rather than restrictive sense. The present inventions are intended to cover alternatives, modifications, and equivalents, which may be included within the spirit and scope of the present inventions as defined by the claims.

What is claimed:

1. A support device, comprising:

a support structure having a wedge configuration; and

a cover for covering the support structure, the cover comprising a case, the case having a lumen sized to accommodate the support structure.

2. The support device of claim 1, wherein the support structure has a support piece, and one or more wedges for changing a position of the support piece.

3. The support device of claim 1, wherein the cover has a tapered configuration when the support structure is placed inside the lumen.

4. The support device of claim 1, wherein the cover has an opening in communication with the lumen.

5. The support device of claim 4, wherein the cover further comprises a first flap located next to the opening.

6. The support device of claim 5, wherein the cover further comprises a second flap located next to the opening.

7. The support device of claim 6, wherein the cover further comprises a connection device located on the first flap or the second flap.

8. The support device of claim 1, further comprising an accessory, wherein the cover has a securing mechanism for detachably securing the accessory to the cover.

9. A cover of a support structure, comprising:

a case having a lumen sized for accommodating a support structure, the case having a first end, a second end, a top side extending between the first and the second ends, and a bottom side;

wherein a first distance between the top side and the bottom side at the first end is shorter than a second distance between the top side and the bottom side at the second end.

10. The cover of claim 9, wherein the case is made from a material selected from the group consisting of cotton, nylon, and leather.

11. The cover of claim 9, further comprising an opening in communication with the lumen, and a first flap located next to the opening.

12. The cover of claim 11, further comprising a second flap located next to the opening.

13. The cover of claim 12, further comprising a connection device secured to one or both of the first and the second flaps.

14. The cover of claim 13, wherein the connection device is selected from the group consisting of a Velcro, a button, a string, a pin, a snap, and a zipper.

15. The cover of claim 12, further comprising a connection device for allowing the second flap to be secured to a first location on the first flap, and for allowing the second flap to be secured to a second location on the first flap.

16. The cover of claim 15, wherein the connection device comprises a plurality of Velcros secured to one or both of the first and the second flaps.

17. The cover of claim 9, wherein at least a portion of the case has a color selected from the group consisting of black, blue, red, tan, and white.

18. The cover of claim 9, further comprising a securing mechanism located on the top side.

19. A cover of a support structure, comprising:

a case having a lumen sized for accommodating the support structure, and an opening in communication with the lumen;

a first flap located next to the opening;

a second flap located next to the opening; and

a connection device for allowing the second flap to be secured to a first location on the first flap, and for allowing the second flap to be secured to a second location on the first flap.

20. The cover of claim 19, wherein the connection device comprises a first Velcro strip secured to the first flap.

21. The cover of claim 20, wherein the connection device further comprises a plurality of Velcro strips secured to the second flap, the first Velcro strip capable of being selectively secured to one of the plurality of Velcro strips on the second flap.

22. The cover of claim 20, wherein the connection device further comprises a second Velcro strip secured to the second flap, the second Velcro strip having a surface area that is larger than a surface area of the first Velcro strip.

23. The cover of claim 19, wherein the case has a surface for supporting a body part, and the cover further comprises a securing mechanism located on the surface.

24. The cover of claim 19, wherein at least a portion of the case is made from spandex.

* * * * *