

(19)



Europäisches Patentamt

European Patent Office

Office européen des brevets



(11)

EP 0 716 988 A2

(12)

EUROPEAN PATENT APPLICATION

(43) Date of publication:
19.06.1996 Bulletin 1996/25

(51) Int. Cl.⁶: B65D 90/04

(21) Application number: 95610059.8

(22) Date of filing: 28.11.1995

(84) Designated Contracting States:
DE DK GB NL

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(30) Priority: 15.12.1994 DK 1431/94

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(54) Liner for cargo container

(57) A cargo container (10) comprises a container body (12), the body being defined by opposite first and second side walls (14,16), a front wall (18), a rear end (20) opposite the front wall (18), a roof (22), a floor (24) opposite the roof (22), and one or more door means (26). The container body (12) defines an interior space and first and second junctions are defined between the first and second side walls (14,16), respectively, and the roof (24). A liner (40) to be suspended within the interior space of the container body (12) is constituted by a flexible body (40) and includes a top front edge opposite first and second top side edges and a top back edge. The

liner (40) further comprises a first multitude of gripping means (42,56) connected to and spaced apart along the first and second top side edges (14,16) thereof. Within the interior space of the container body (12) and at the first and second junctions thereof second multitude of lashing elements (28) is positioned. A rope means (38) is also provided and suspended by the lashing elements (28), as the gripping means (42,56) are engaged to the rope means (38) for supporting the liner (40) in an upright position within the interior space defined within the container body (12).

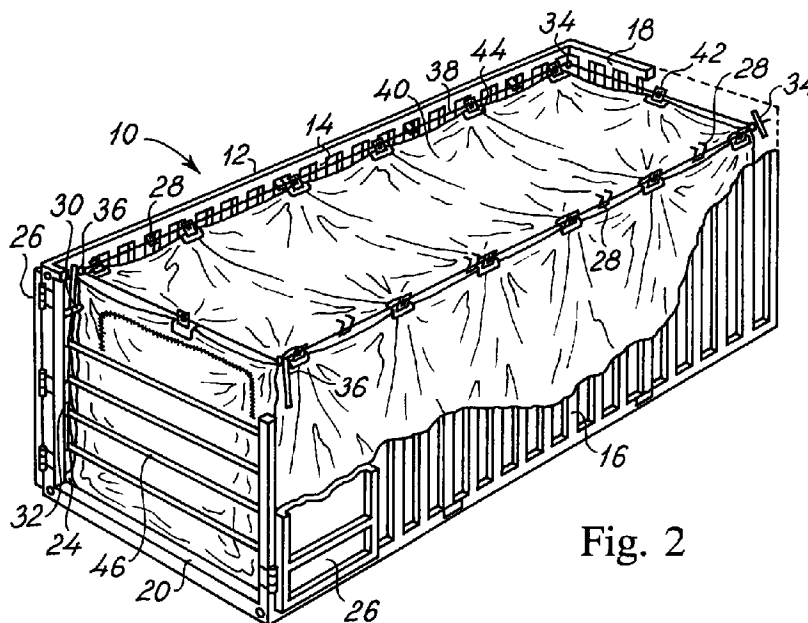


Fig. 2

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Description

The present invention relates to cargo containers, liners for installing inside a cargo container, centres of suspension and methods of installing a liner inside a cargo container.

Standardized containers or boxes have become into very extensive use for the shipment of freight by land and sea, and the many advantages of such containers have made it extremely desirable to adapt them for use with as many types of cargo as possible. Accordingly, there have been attempts, with varying degrees of success, to use such standardized containers to carry bulk cargo such as dry bulk chemicals, powdered and pelletized resins, flour, coffee, cocoa and grains.

When cargo containers are used to carry such bulk cargo, it is important that the container itself either be kept clean or be cleaned after each load of cargo is emptied from the container, so that the container can be subsequently used with another load of cargo. Moreover, it is important to protect the bulk cargo from contamination and from undesirable exposure to the natural elements.

For these reasons large plastic removable liners are often used to line the interior walls of surfaces of cargo containers that are used to carry bulk cargo. The liners protect the cargo during shipment e.g. from rain and debris; and after the cargo is delivered, the liner can be removed so that the container is again usable, without significant cleaning, to carry other cargo.

Various difficulties have been encountered, however, in using plastic liners in the above described manner. It has in particular been found that the liners may tear or rupture under certain conditions. E.g. the general practice in the industry is to try to secure the liners comparatively tightly inside the cargo containers so as to minimize movement of the liners therein. However, bulk cargo loads often shift; and if such a load shifts inside a liner, that itself is practically immovable inside a cargo container, then the shifting load may produce high localized stresses on the liner, which in turn may cause the liner to tear or rupture.

In addition with liners that are used in the above discussed manner, bulk heads are often secured to the back ends of the liners to help hold and support the liners inside the cargo containers, particularly when cargo is being loaded into and discharged from the liners. Commonly, a bulk head is secured to the back end of the liner by means of an adhesive, by staples or both; and during transportation, a bulk head may partially break away from a liner, tearing or rupturing the liner.

Moreover, in the prior art, there has been disclosed containers being equipped with centres of suspension, said centres of suspension being welded on in the upper corners of the containers, thereby constituting built-in centres of suspension. Such constructions are not particularly appropriate as said centers of suspension have to be removed when the containers reach their point of destination. Furthermore, after removing the centres of suspension, the containers have to be repainted.

The prior art has been disclosed in US patents Nos. 5,193,710, 5,040,693, 4,884,722, 4,799,607, 4,186,845, 3,171,449, 2,989,213, 3,386,605, 3,574,332, 3,696,952, 3,868,042, 4,470,749, 2,712,797, 5,167,472, 5,181,625, 5,125,735, 4,497,859, 4,765,671, 4,265,949, 4,903,852, 4,940,616, EP patent publications Nos. 0 245 034, 0294 165, 0 313 406, 0 393 991, 0428 394, 0 517 046, 0468 545, 0 267 443, 0 468 546, International application, publication Nos. WO 93/02004, 93/08102, 92/16437, 89/11428, GB patent No. 1,504,699, GB patent application No. 2,104,833 and in CA patent Nos. 1,205,106, 1,082,867, 1,070,626, which are hereby incorporated by reference.

It is an object of this invention to secure a liner inside a cargo container while still allowing limited movement of the liner inside the cargo container.

Another object of the present invention is to provide a liner which fits into the container as well as possible, so as to ease the loading/unloading of the container. Preferably a liner is provided which extends entirely to the inner walls and the interior corners of the container.

A further object of the present invention is to provide an easy and profitable method of installing a liner inside a cargo container.

Another object of the invention is to provide centres of suspension, which are to be releasably secured in wedgelike relationship at upper corners of the container rear end and front wall.

A further object of the present invention is to avoid the drawbacks of the prior art cargo containers and liners.

According to a first aspect of the invention a cargo container is provided comprising:

a container body, said body being defined by opposite first and second side walls, a front wall, a rear end opposite said front wall, a roof, a floor opposite said roof, and one or more door means for closing and sealing said body, and defining an interior space, first and second junctions being defined between said first and second side walls, respectively, and said roof,

a liner, said liner being constituted by a flexible body and including a top front edge, opposite first and second top side edges and a top back edge, and comprising a first multitude of gripping means, connected to and spaced apart along said first and second top side edges thereof,

a second multitude of lashing elements positioned within said interior space of said container body and at said first and second junctions thereof, and

rope means suspended by said lashing elements, said gripping means being engaged to said rope means for supporting said liner in an upright position within the interior space defined within said container body.

According to a second aspect of the invention, a cargo container is provided, comprising:

a container body, said body being defined by opposite first and second side walls, a front wall, a rear end opposite said front wall, a roof, a floor opposite said roof, and one or more door means for closing and sealing

said body, and defining an interior space, first and second junctions being defined between said first and second side walls, respectively, and said roof,

a liner, said liner being constituted by a flexible body and including a top front edge, opposite first and second top side edges and a top back edge, and comprising a first multitude of gripping means, connected to and spaced apart along said first and second top side edges thereof,

a second multitude of lashing elements positioned within said interior space of said container body and at said first and second junctions thereof, and

a first centre of suspension releasably secured in wedgelike relationship to said first side wall, adjacent the first upper corner of said container rear end,

a second centre of suspension releasably secured in wedgelike relationship to said second side wall, opposite said first centre of suspension, adjacent the second upper corner of said container rear end, and

rope means suspended by said lashing elements and fixated to said first and second centre of suspension, said gripping means being engaged to said rope means for supporting said liner in an upright position within the interior space defined within said container body.

According to a third aspect of the invention, a cargo container is provided, comprising:

a container body, said body being defined by opposite first and second side walls, a front wall, a rear end opposite said front wall, a roof, a floor opposite said roof, and one or more door means for closing and sealing said container, and defining an interior space, first and second junctions being defined between said first and second side walls, respectively, and said roof,

a liner, said liner being constituted by a flexible body and including a top front edge, opposite first and second top side edges and a top back edge, and comprising a first multitude of gripping means connected to and spaced apart along said first and second top side edges thereof,

a second multitude of lashing elements positioned within said interior space of said container body and at said first and second junctions thereof, and

a third centre of suspension releasably secured in wedgelike relationship to said first side wall adjacent the upper corner of said container front wall,

a fourth centre of suspension releasably secured in wedgelike relationship to said second side wall adjacent the second upper corner of said container front wall and

rope means suspended by said lashing elements and fixated to said third and fourth centre of suspension, said gripping means being engaged to said rope means for supporting said liner in an upright position within the interior space defined within said container body.

According to a first embodiment of the cargo container according to the second aspect of the invention, said cargo container further comprises

a third centre of suspension releasably secured in wedgelike relationship to said first side wall adjacent

the upper corner of said container front wall,

a fourth centre of suspension releasably secured in wedgelike relationship to said second side wall adjacent the second upper corner of said container front wall and

said rope means being fixated to said third and fourth centre of suspension.

According to a preferred or second embodiment of the cargo container according to the second and third aspects of the invention, the rope means extends through the lashing elements and through the centres of suspension so as to constitute an encircling rope means or a closed loop.

According to a further or third embodiment of the cargo container according to the present invention, said gripping means comprises a liner mounting attached to the liner and a clip means or hook means secured by said liner mounting.

According to a still further or fourth embodiment of the cargo container according to the present invention, said first and second centres of suspension comprise bar means secured in wedgelike relationship to the first and second side walls respectively, adjacent the first and second upper corners of the container rear end, by screw means, said screw means each defining an eye, a hook or the like.

According to a fifth embodiment of the cargo container according to the present invention, third and fourth centres of suspension comprise bar means secured in wedgelike relationship at said first and second upper corners, respectively, of said container front wall, by screw means, said screw means each defining an eye, a hook or the like.

According to a sixth embodiment of the cargo container according to the present invention, said liner further comprises gripping means connected to and spaced apart along the top front and top back edges thereof.

According to a seventh embodiment of the cargo container according to the present invention, said liner defines a sleeve with enclosed straps, said sleeve with enclosed straps being attached to the floor adjacent the front wall of the container by means of nail, screws or the like.

According to the invention a centre of suspension is also provided comprising bar means to be secured in wedgelike relationship to first and second side walls of a container body adjacent first and second upper corners of a container rear end, by screw means, said screw means each defining an eye, a hook or the like.

Moreover, according to the invention a centre of suspension is provided comprising bar means to be secured in wedgelike relationship at first and second upper corners of a container front wall of a container body, by screw means, said screw means each defining an eye, a hook or the like.

According to a fourth aspect of the present invention, a liner for installing inside a container body is provided, said body being defined by opposite first and second side walls, a front wall, a rear end opposite said front wall, a

roof, a floor opposite said roof, and one or more door means for closing and sealing said body, and defining an interior space, said liner being constituted by a flexible body and including a top front edge, opposite first and second top side edges and a top back edge, and comprising a first multitude of gripping means connected to and spaced apart along said first and second top side edges thereof.

According to the present invention, a first embodiment of the above liner is provided, wherein said gripping means comprises a liner mounting attached to said liner, and a hook means or clip means secured by said liner mounting.

According to a second embodiment of the liner of the present invention said liner further comprises gripping means connected to and spaced apart along the top front and top back edges thereof.

According to a third embodiment of the liner of the present invention said liner defines a sleeve with enclosed straps, said sleeve with enclosed strap being attached to the floor adjacent the front wall of the container by means of nail, screws or the like.

According to a fifth aspect the present invention a method of installing a liner inside a cargo container is provided,

said liner being constituted by a flexible body and including a top front edge, first and second top side edges and a top back edge, and comprising a first multitude of gripping means connected to and spaced apart along said first and second top side edges thereof, and said cargo container comprising:

a container body, said body being defined by opposite first and second side walls, a front wall, a rear end opposite said front wall, a roof, a floor opposite said roof, and one or more door means for closing and sealing said body, and defining an interior space, first and second junctions being defined between said first and second side walls, respectively, and said roof, and

a second multitude of lashing elements positioned within said interior space of said container body and at said first and second junctions thereof,

the method comprising the following steps:

placing said liner inside said cargo container, providing a rope means,

suspending said rope means within said interior space within said container body by said lashing elements, and

engaging said gripping means to said rope means for supporting said liner in an upright position within the interior space defined within said container body.

According to a sixth aspect of the present invention a first a method of installing a liner inside a cargo container is provided,

said liner being constituted by a flexible body and including a top front edge, opposite first and second top side edges and a top back edge, and comprising a first multitude of gripping means connected to and spaced apart along said first and second top side edges thereof, and

said cargo container comprising:

a container body, said body being defined by opposite first and second side walls, a front wall, a rear end opposite said front wall, a roof, a floor opposite said roof, and one or more door means for closing and sealing said body, and defining an interior space, first and second junctions being defined between said first and second side walls, respectively, and said roof, and

a second multitude of lashing elements positioned within said interior space of said container body and at said first and second junctions thereof,

the method comprising the following steps:

placing said liner inside said cargo container, and releasably securing a first centre of suspension in

wedgelike relationship to said first side wall, adjacent the first upper corner of said container rear end, and

releasably securing a second centre of suspension in wedgelike relationship to said second side wall, opposite said first centre of suspension, adjacent the second upper corner of said container rear end,

providing a rope means,

suspending said rope means within said interior space within said container body by said lashing elements and fixating said rope means to said first and second centre of suspension, and

engaging said gripping means to said rope means for supporting said liner in an upright position within the interior space defined within said container body.

According to a seventh aspect of the present invention a method of installing a liner inside a cargo container is provided,

the liner being constituted by a flexible body and including a top front edge, opposite first and second top side edges and a top back edge, and comprising a first multitude of gripping means connected to and spaced apart along said first and second top side edges thereof, and

said cargo container comprising:

a container body, said body being defined by opposite first and second side walls, a front wall, a rear end opposite said front wall, a roof, a floor opposite said roof, and one or more door means for closing and sealing said container, and defining an interior space, first and second junctions being defined by said first and second side walls, respectively, and said roof, and

a second multitude of lashing elements positioned within said interior space of said container body and at said first and second junctions thereof,

the method comprising the following steps:

placing said liner inside said cargo container,

releasably securing a third centre of suspension in wedgelike relationship to said first side wall adjacent the upper corner of said container front wall,

releasably securing a fourth centre of suspension in wedgelike relationship to said second side wall adjacent the second upper corner of said container front wall,

providing a rope means,

suspending said rope means within said interior space within said container body by said lashing ele-

ments and fixating said rope means to said third and fourth centre of suspension, and

engaging said gripping means to said rope means for supporting said liner in an upright position within the interior space defined within said container body.

According to an eighth aspect of the present invention a method of installing a liner inside a cargo container is provided,

the liner being constituted by a flexible body and including a top front edge, opposite first and second top side edges and a top back edge, and comprising a first multitude of gripping means connected to and spaced apart along said first and second top side edges thereof, and

said cargo container comprising:

a container body, said body being defined by opposite first and second side walls, a front wall, a rear end opposite said front wall, a roof, a floor opposite said roof, and one or more door means for closing and sealing said body, and defining an interior space, first and second junctions being defined between said first and second side walls, respectively, and said roof, and

a second multitude of lashing elements positioned within said interior space of said container body and at said first and second junctions thereof,

the method comprising the following steps:

placing said liner inside said cargo container,

releasably securing a first centre of suspension in wedgelike relationship to said first side wall, adjacent the first upper corner of said container rear end, and

releasably securing a second centre of suspension in wedgelike relationship to said second side wall, opposite said first centre of suspension, adjacent the second upper corner of said container rear end,

releasably securing a third centre of suspension in wedgelike relationship to said first side wall adjacent the upper corner of said container front wall,

releasably securing a fourth centre of suspension in wedgelike relationship to said second side wall adjacent the second upper corner of said container front wall,

providing a rope means,

suspending said rope means within said interior space within said container body by said lashing elements and fixating said rope means to said first, second, third or fourth centre of suspension, and

engaging said gripping means to said rope means for supporting said liner in an upright position within the interior space defined within said container body.

In a preferred embodiment of the method according to the eighth aspect of the invention said rope means extends through the first, second, third and fourth centres of suspension and through the lashing elements of the container, so as to constitute an encircling rope means or a closed loop.

In a further embodiment of the method according to the eighth aspect of the invention said liner defines a sleeve with enclosed straps, said sleeve with enclosed straps being attached to the floor adjacent the front wall of the container by means of nail, screws or the like.

Further benefits and advantages of the invention will become apparent from a consideration of the following detailed description given with reference to the accompanying drawings, which specify and show preferred embodiments of the invention.

Figure 1 is a perspective, schematic and partly broken-away view of a first embodiment of a cargo container according to the present invention including an expandable liner according to the present invention secured inside the cargo container.

Figure 2 is a perspective, schematic and partly broken-away view similar to the view of Figure 1, illustrating the liner placed and fixated within the cargo container and ready for shipment.

Figure 3 is a perspective, schematic and partly broken-away view of an upper corner of the cargo container rear end illustrating a bar, secured to the inside wall of the cargo container.

Figure 4 is a perspective, schematic and partly broken-away view of an upper corner of the cargo container rear end, illustrating a bar secured to an upper corner of the container rear.

Figure 5 is a perspective and schematic view of an upper edge part of a liner according to the present invention to which upper edge part a liner mounting is attached for fixating a clip relative to the upper edge part.

Figure 6 is a perspective and schematic view similar to Figure 5, illustrating the clip secured to a rope.

Figure 7 is a perspective and schematic view, similar to the view of Figure 5, of an alternative embodiment of the liner mounting including a hook.

Figure 8 is a perspective and schematic view of the interior rear wall floor part of the container to which part the liner is attached.

Figure 1 shows a cargo container 10 which comprises a container body 12 defining an interior space. The container 12 is defined by opposite first and second side walls 14 and 16, a front wall 18 and a rear end 20 opposite the front wall 18, a roof 22 (shown in part) and an opposite floor 24. At the rear end 20, the container 12 further comprises doors 26, which are shown in an open position and which constitute a wall opposite said front wall 18, when the doors 26 are closed. The container 12 comprises a first multitude of lashing elements 28 which are connected to and spaced apart along the side walls 14 and 16 of the container body 12 adjacent the roof 22. Adjacent the rear end 20 and adjacent the roof 22 the container 12 further comprises a crossbar to which a strap 32 is releasably attached. The crossbar 30 constitutes a part of the container body 12 and is recessed within the side wall 14 at the upper part of the frame of the rear end 20. To the side wall 16, opposite said crossbar 30 is attached a crossbar (not shown), and a strap (not shown) opposite said strap 32 is attached in a similar manner as the strap 32. At the upper corner of the container front wall 18, a centre of suspension 34 is releasably secured in wedgelike relationship relative to the side wall 14 and the front wall 18. A similar centre of suspension (34 shown in Figure 2) is releasably secured in

wedgelike relationship at the opposite upper corner of the container front wall, which corner is defined by the side wall 16 and the front wall 18. At the upper corner of the container rear end 20, a centre of suspension 36 is releasably secured in wedgelike relationship relative to the side wall 14 and the rear end 20. Similarly, a centre of suspension (36 shown in Figure 2) is releasably secured in wedgelike relationship at the opposite upper corner of the container rear end 20, which corner is defined by the side wall 16 and the rear end 20. The centres of suspension 34 and 36 are shown in greater details in Figures 3 and 4 and are to be described in greater details below. In Figure 1, a rope 38 extends through the lashing elements 28 and through the centres of suspension 34 and 36, and defines an encircling rope or a closed loop. Furthermore, Figure 1 shows a liner 40 placed inside the container body 12, which liner 40 comprises a second multitude of clips 42, which are secured to the liner 40 by liner mountings 44. A preferred embodiment of the clip 42 and the liner mounting 44 is shown in Figure 5. The clips 42 are used for fixating the liner 40 to the rope 38.

Figure 2 shows the cargo container 10 according to Figure 1, wherein the liner 40 is secured to the rope 38 and ready for shipment. The liner 40 is preferably designed to conform substantially to the shape of the interior space of the cargo container in which the liner is to be used. It is, however, to be noted that the present invention may be practised with liners that only partially conform to the shape of the interior space of the cargo container in which the liner is to be used. As shown in Figure 2, front bars 46 are secured by the strap 32 and the above described opposite strap (not shown). The straps are preferably placed and adjusted so as to position a first bar of the front bars 46 about 45 cm above the floor 24 of the container 12. The liner 40 may be made in any suitable manner and from any suitable material. Thus, the liner 40 may e.g. be made from a thin plastic material foil such as polyethylene foil, polyvinylchloride foil, polypropylene foil or the like, having a thickness of about 7 mils. The liner 40 may be loaded in a known manner per se with viscous material or dry material such as dry bulk chemicals, powdered and pelletized resins, flour, coffee, cocoa, rice, fishmeal, sugar, malt, talcum, cement and grains or the like.

Figure 3 illustrates in greater detail an upper corner of the container rear end 20, which corner is defined by the side wall 14 and the rear end 20. The centre of suspension 36 comprises a bar 48 which is equipped with a screw 50 at one end thereof, which screw defines an eye and is provided with a nut part 49 and a thread part 51. The bar 48 is releasably secured in wedgelike relationship to the side wall 14 at the upper corner of the container rear end 20, by means of the screw 50 and is fixated behind the crossbar 30. As shown in Figure 3, the rope 38 extends through the eye of said screw 50, which rope 38 is used for securing the liner 40 inside the container body 12 as described above.

Figure 4 illustrates in greater details the upper corner of the container front wall 18, which corner is defined by side wall 14 and front wall 18. The centre of suspension 34 comprises a bar 52 which is releasably secured in wedgelike relationship to the corner by means of a screw 54, which defines an eye and comprises a nut part 53 and a thread part 55. Furthermore, a lashing element 28 is shown attached to the side wall 14. The rope 38 extends through the eye of said screw 54 and through the lashing element 28.

Figure 5 shows a first embodiment of the liner mounting 44 to which a clip 42 is fastened.

Figure 6 shows the clip 42 engaged to the rope 38.

Figure 7 shows an alternative or second embodiment of the liner mounting 44, to which a hook 56 is fastened.

In Figure 8, a rear end of the liner 40 is shown defining a sleeve 58 with enclosed straps 60. The sleeve 58 with the enclosed strap 60 is placed under the liner on the floor 24 at the front wall 18 of the container, in order to avoid the liner sliding forwards. The liner 40 is attached to the floor by means of nails 62, which penetrate the sleeve 58 and the strap 60.

The liners disclosed herein may be used to carry a large variety of products including viscous material or dry material, e.g. dry bulk chemical, powdered and pelletized resins, flour, coffee, cocoa, rice, fishmeal, sugar malt, talcum, cement and grains and the like.

While it is apparent that the invention herein disclosed is well calculated to fulfil the objects previously stated, it will be appreciated that the numerous modifications and embodiments may be devised by those skilled in the art, and it is intended that the appended claims cover all such modifications and embodiments as fall within the true spirit and scope of the present invention.

Claims

1. A cargo container (10) comprising:
 - a container body (12), said body (12) being defined by opposite first and second side walls (14, 16), a front wall (18), a rear end (20) opposite said front wall (18), a roof (22), a floor (24) opposite said roof (22), and one or more door means (26) for closing and sealing said body (12), and defining an interior space, first and second junctions being defined between said first and second side walls (14, 16), respectively, and said roof,
 - a liner (40), said liner (40) being constituted by a flexible body and including a top front edge, opposite first and second top side edges and a top back edge, and comprising a first multitude of gripping means (42, 56) connected to and spaced apart along said first and second top side edges thereof,
 - a second multitude of lashing elements (28) positioned within said interior space of said container body (12) and at said first and second junctions thereof, and

rope means (38) suspended by said lashing elements (28), said gripping means (42, 56) being engaged to said rope means for supporting said liner (40) in an upright position within the interior space defined within said container body (12).

2. A cargo container (10) comprising:

a container body (12), said body (12) being defined by opposite first and second side walls (14, 16), a front wall (18), a rear end (20) opposite said front wall (18), a roof (22), a floor (24) opposite said roof (22), and one or more door means (26) for closing and sealing said body (12), and defining an interior space, first and second junctions being defined between said first and second side walls (14, 16), respectively, and said roof,

a liner (40), said liner (40) being constituted by a flexible body and including a top front edge, opposite first and second top side edges and a top back edge, and comprising a first multitude of gripping means (42, 56) connected to and spaced apart along said first and second top side edges thereof,

a second multitude of lashing elements (28) positioned within said interior space of said container body (12) and at said first and second junctions thereof, and

a first centre of suspension (36) releasably secured in wedgelike relationship to said first side wall (14), adjacent the first upper corner of said container rear end (20),

a second centre of suspension (36) releasably secured in wedgelike relationship to said second side wall (16), opposite said first centre of suspension (36), adjacent the second upper corner of said container rear end (20), and

rope means (38) suspended by said lashing elements (28) and fixated to said first and second centre of suspension (36), said gripping means (42, 56) being engaged to said rope means for supporting said liner (40) in an upright position within the interior space defined within said container body (12).

3. A cargo container (10) comprising:

a container body (12), said body (12) being defined by opposite first and second side walls (14, 16), a front wall (18), a rear end (20) opposite said front wall (18), a roof (22), a floor (24) opposite said roof (22), and one or more door means (26) for closing and sealing said container (12), and defining an interior space, first and second junctions being defined between said first and second side walls (14, 16), respectively, and said roof,

a liner (40), said liner (40) being constituted by a flexible body and including a top front edge, opposite first and second top side edges and a top back edge, and comprising a first multitude of gripping means (42, 56) connected to and spaced apart along said first and second top side edges thereof,

a second multitude of lashing elements (28) positioned within said interior space of said container body (12) and at said first and second junctions thereof, and

a third centre of suspension (34) releasably secured in wedgelike relationship to said first side wall (14) adjacent the upper corner of said container front wall (18),

a fourth centre of suspension (34) releasably secured in wedgelike relationship to said second side wall (16) adjacent the second upper corner of said container front wall (18) and

rope means (38) suspended by said lashing elements (28) and fixated to said third and fourth centre of suspension (34), said gripping means (42, 56) being engaged to said rope means for supporting said liner (40) in an upright position within the interior space defined within said container body (12).

4. The cargo container according to claim 2, further comprising

a third centre of suspension (34) releasably secured in wedgelike relationship to said first side wall (14) adjacent the upper corner of said container front wall (18),

a fourth centre of suspension (34) releasably secured in wedgelike relationship to said second side wall (16) adjacent the second upper corner of said container front wall (18) and

said rope means (38) being fixated to said third and fourth centre of suspension (34).

5. The cargo container according to claims 2-4, wherein said rope means (38) extends through said lashing elements (28), and through said centres of suspension so as to constitute an encircling rope means or a closed loop.

6. The cargo container according to claims 1-5, wherein said gripping means (42, 56) comprises a liner mounting (44) attached to the liner (40) and a clip means (42) or hook means (56) secured by said liner mounting (44).

7. The cargo container according to claims 2 or 4, wherein said first and second centres of suspension (36) comprise bar means (48) secured in wedgelike relationship to the first and second side walls (14 and 16), respectively, adjacent said first and second upper corners of said container rear end (20), by screw means (50), said screw means each defining an eye, a hook or the like.

8. The cargo container according to claims 3 or 4, wherein said third and fourth centres of suspension (34) comprise bar means (52) secured in wedgelike relationship at said first and second upper corners, respectively, of said container front wall (18), by

screw means (54), said screw means each defining an eye, a hook or the like.

9. The cargo container according to claim 4, wherein said liner (40) further comprising gripping means (42, 56) connected to and spaced apart along the top front and top back edges thereof. 5
10. The cargo container according to any of claims 1-9, wherein said liner (40) defines a sleeve (58) with enclosed straps (60), said sleeve (58) with enclosed straps (60) being attached to the floor (24) adjacent the front wall (18) of the container by means of nail, screws or the like. 10
11. A centre of suspension (36) comprising bar means (48) to be secured in wedgelike relationship to first and second side walls (14 and 16) of a container body (12) adjacent first and second upper corners of a container rear end (20), by screw means (50), said screw means each defining an eye, a hook or the like. 15
12. A centre of suspension (34) comprising bar means (52) to be secured in wedgelike relationship at first and second upper corners of a container front wall (18) of a container body (12), by screw means (54), said screw means each defining an eye, a hook or the like. 20
13. A liner (40) for installing inside a container body (12), said body (12) being defined by opposite first and second side walls (14, 16), a front wall (18), a rear end (20) opposite said front wall (18), a roof (22), a floor (24) opposite said roof, and one or more door means for closing and sealing said body (12), and defining an interior space, said liner being constituted by a flexible body and including a top front edge, opposite first and second top side edges and a top back edge, and comprising a first multitude of gripping means (42, 56) connected to and spaced apart along said first and second top side edges thereof. 25
14. The liner according to claim 13, wherein said gripping means (42, 56) comprises a liner mounting (44) attached to said liner, and a hook means (56) or clip means (42) secured by said liner mounting (44). 30
15. The liner according to claim 13 or 14, said liner (40) further comprising gripping means (42, 56) connected to and spaced apart along the top front and top back edges thereof. 35
16. The liner according to claim 13, 14 or 15, said liner (40) defining a sleeve (58) with enclosed straps (60), said sleeve (58) with enclosed strap (60) being attached to the floor (24) adjacent the front wall (18) of the container by means of nail, screws or the like. 40

17. A method of installing a liner (40) inside a cargo container (10),

said liner (40) being constituted by a flexible body and including a top front edge, first and second top side edges and a top back edge, and comprising a first multitude of gripping means (42, 56) connected to and spaced apart along said first and second top side edges thereof, and

said cargo container comprising:

a container body (12), said body (12) being defined by opposite first and second side walls (14, 16), a front wall (18), a rear end (20) opposite said front wall (18), a roof (22), a floor (24) opposite said roof (22), and one or more door means (26) for closing and sealing said body (12), and defining an interior space, first and second junctions being defined between said first and second side walls (14, 16), respectively, and said roof, and

a second multitude of lashing elements (28) positioned within said interior space of said container body (12) and at said first and second junctions thereof,

the method comprising the following steps:

placing said liner inside said cargo container, providing a rope means,

suspending said rope means within said interior space within said container body (12) by said lashing elements (28), and

engaging said gripping means (42, 56) to said rope means for supporting said liner (40) in an upright position within the interior space defined within said container body (12).

18. A method of installing a liner (40) inside a cargo container (10),

said liner (40) being constituted by a flexible body and including a top front edge, opposite first and second top side edges and a top back edge, and comprising a first multitude of gripping means (42, 56) connected to and spaced apart along said first and second top side edges thereof, and

said cargo container comprising:

a container body (12), said body (12) being defined by opposite first and second side walls (14, 16), a front wall (18), a rear end (20) opposite said front wall (18), a roof (22), a floor (24) opposite said roof (22), and one or more door means (26) for closing and sealing said body (12), and defining an interior space, first and second junctions being defined between said first and second side walls (14, 16), respectively, and said roof, and

a second multitude of lashing elements (28) positioned within said interior space of said container body (12) and at said first and second junctions thereof,

the method comprising the following steps:

placing said liner inside said cargo container,

releasably securing a first centre of suspension (36) in wedgelike relationship to said first side

wall (14), adjacent the first upper corner of said container rear end (20), and

releasably securing a second centre of suspension (36) in wedgelike relationship to said second side wall (16), opposite said first centre of suspension (36), adjacent the second upper corner of said container rear end (20),

providing a rope means,

suspending said rope means within said interior space within said container body (12) by said lashing elements (28) and fixating said rope means to said first and second centre of suspension (36), and

engaging said gripping means (42, 56) to said rope means for supporting said liner (40) in an upright position within the interior space defined within said container body (12).

19. A method of installing a liner (40) inside a cargo container (10),

said liner (40) being constituted by a flexible body and including a top front edge, opposite first and second top side edges and a top back edge, and comprising a first multitude of gripping means (42, 56) connected to and spaced apart along said first and second top side edges thereof, and

said cargo container comprising:

a container body (12), said body (12) being defined by opposite first and second side walls (14, 16), a front wall (18), a rear end (20) opposite said front wall (18), a roof (22), a floor (24) opposite said roof (22), and one or more door means (26) for closing and sealing said container (12), and defining an interior space, first and second junctions being defined by said first and second side walls (14, 16), respectively, and said roof, and

a second multitude of lashing elements (28) positioned within said interior space of said container body (12) and at said first and second junctions thereof,

the method comprising the following steps:

placing said liner inside said cargo container, releasably securing a third centre of suspension (34) in wedgelike relationship to said first side wall (14) adjacent the upper corner of said container front wall (18),

releasably securing a fourth centre of suspension (34) in wedgelike relationship to said second side wall (16) adjacent the second upper corner of said container front wall (18),

providing a rope means,

suspending said rope means within said interior space within said container body (12) by said lashing elements (28) and fixating said rope means to said third and fourth centre of suspension (34), and

engaging said gripping means (42, 56) to said rope means for supporting said liner (40) in an

upright position within the interior space defined within said container body (12).

20. A method of installing a liner (40) inside a cargo container (10),

said liner (40) being constituted by a flexible body and including a top front edge, opposite first and second top side edges and a top back edge, and comprising a first multitude of gripping means (42, 56) connected to and spaced apart along said first and second top side edges thereof, and

said cargo container comprising:

a container body (12), said body (12) being defined by opposite first and second side walls (14, 16), a front wall (18), a rear end (20) opposite said front wall (18), a roof (22), a floor (24) opposite said roof (22), and one or more door means (26) for closing and sealing said body (12), and defining an interior space, first and second junctions being defined between said first and second side walls (14, 16), respectively, and said roof, and

a second multitude of lashing elements (28) positioned within said interior space of said container body (12) and at said first and second junctions thereof,

the method comprising the following steps:

placing said liner inside said cargo container,

releasably securing a first centre of suspension (36) in wedgelike relationship to said first side wall (14), adjacent the first upper corner of said container rear end (20), and

releasably securing a second centre of suspension (36) in wedgelike relationship to said second side wall (16), opposite said first centre of suspension (36), adjacent the second upper corner of said container rear end (20),

releasably securing a third centre of suspension (34) in wedgelike relationship to said first side wall (14) adjacent the upper corner of said container front wall (18),

releasably securing a fourth centre of suspension (34) in wedgelike relationship to said second side wall (16) adjacent the second upper corner of said container front wall (18),

providing a rope means,

suspending said rope means within said interior space within said container body (12) by said lashing elements (28) and fixating said rope means to said first, second, third or fourth centre of suspension (34, 36), and

engaging said gripping means (42, 56) to said rope means for supporting said liner (40) in an upright position within the interior space defined within said container body (12).

21. The method according to claims 20, wherein said rope means extends through said first, second, third and fourth centres of suspension and through said

lashing elements (28), so as to constitute an encircling rope means or a closed loop.

22. The method according to any of claims 17-21, wherein said liner (40) defines a sleeve (58) with enclosed straps (60), said sleeve with enclosed straps being attached to the floor (24) adjacent the front wall (18) of the container by means of nail, screws or the like.

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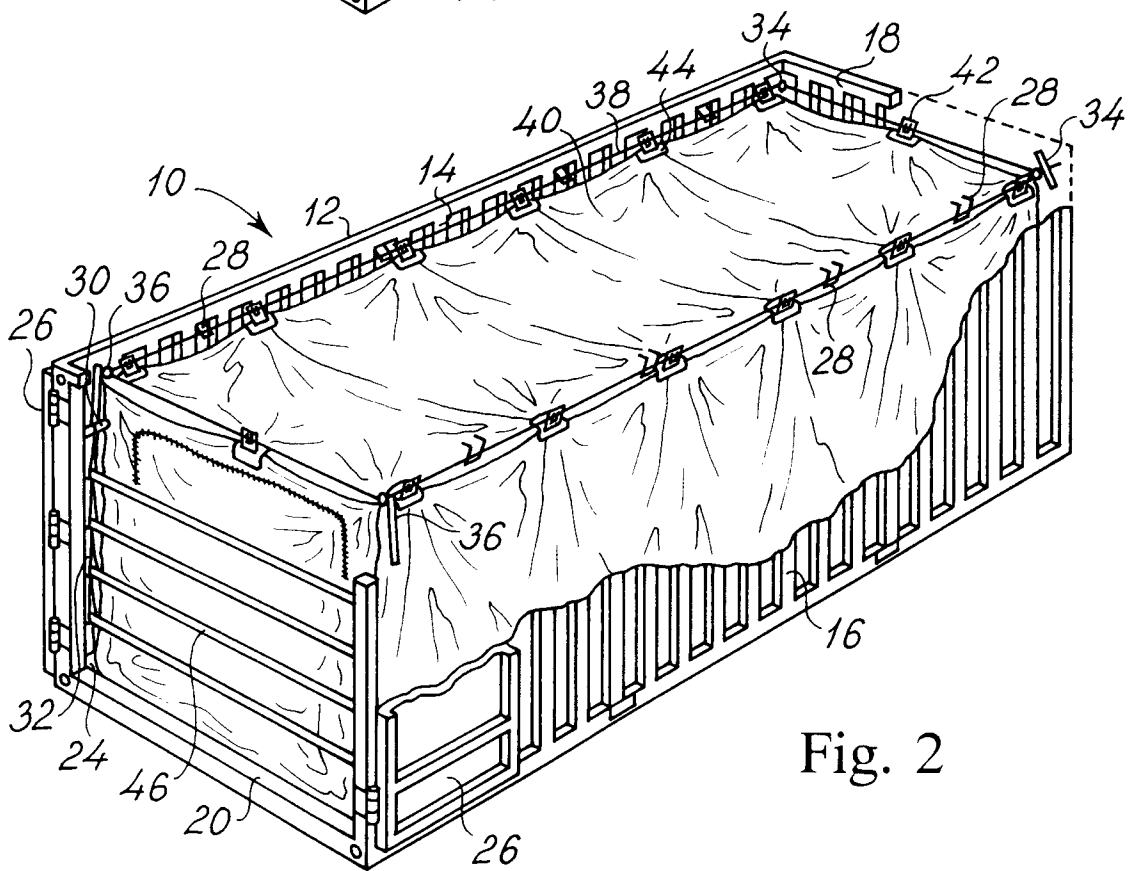
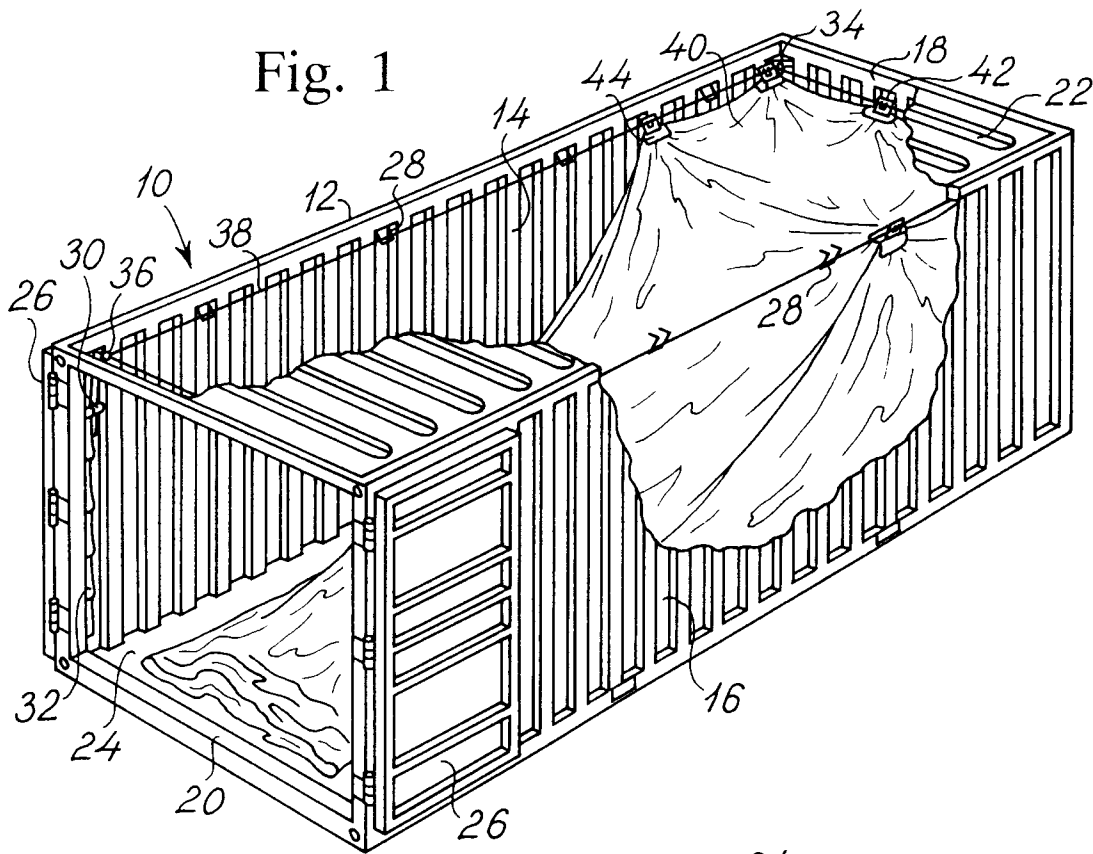
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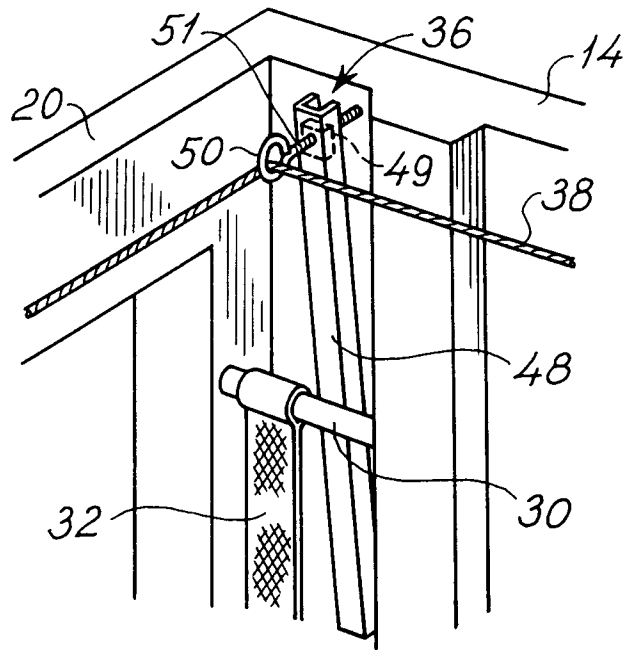


Fig. 3

Fig. 4

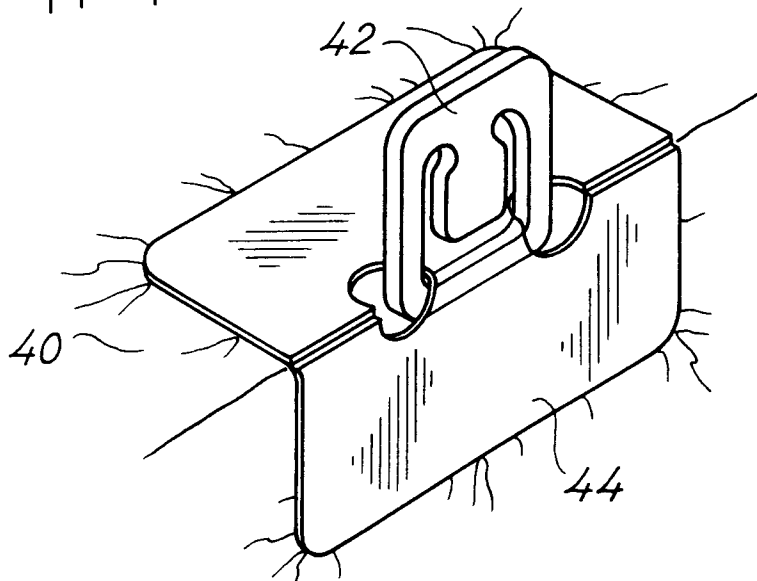
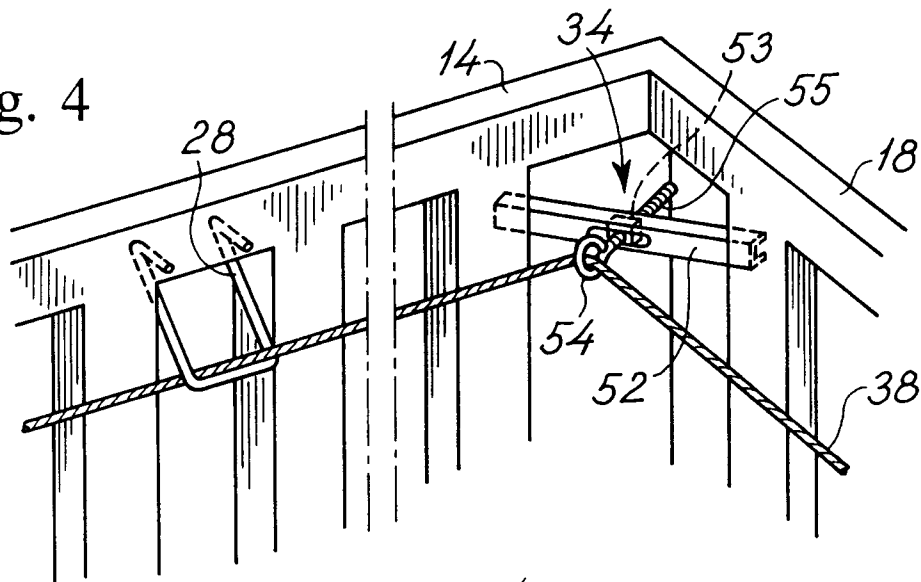


Fig. 5

Fig. 6

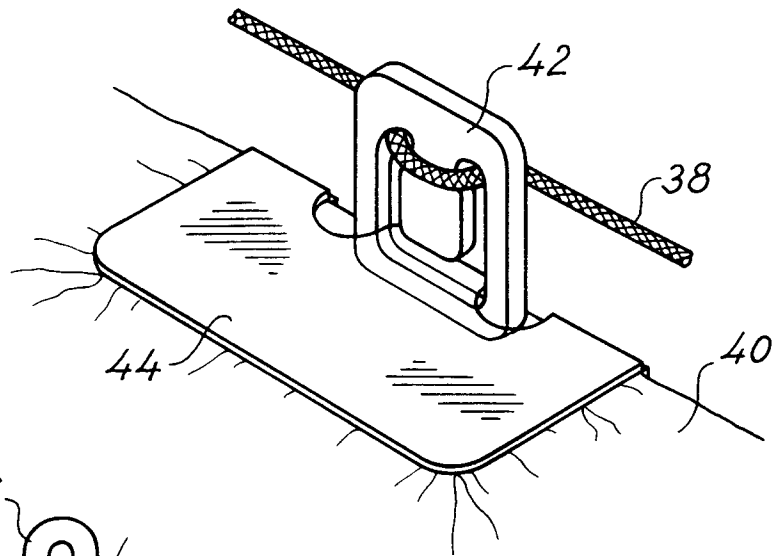


Fig. 7

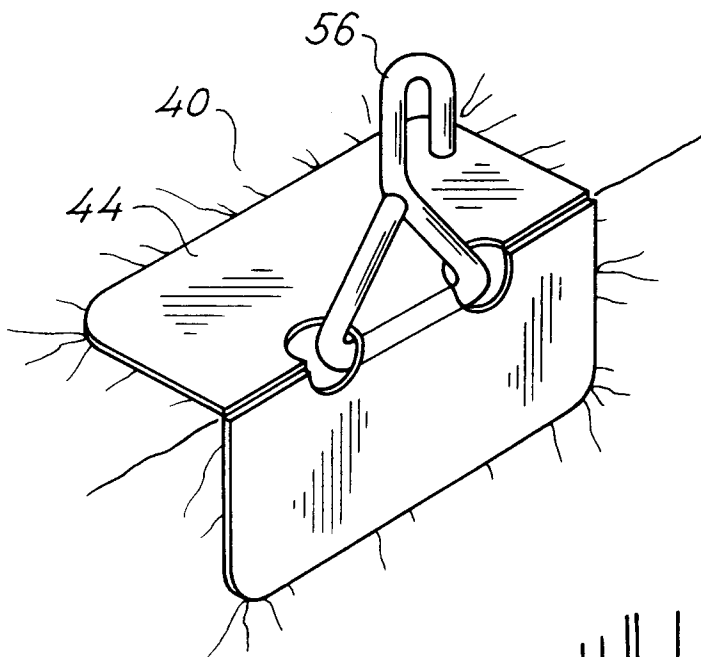


Fig. 8

