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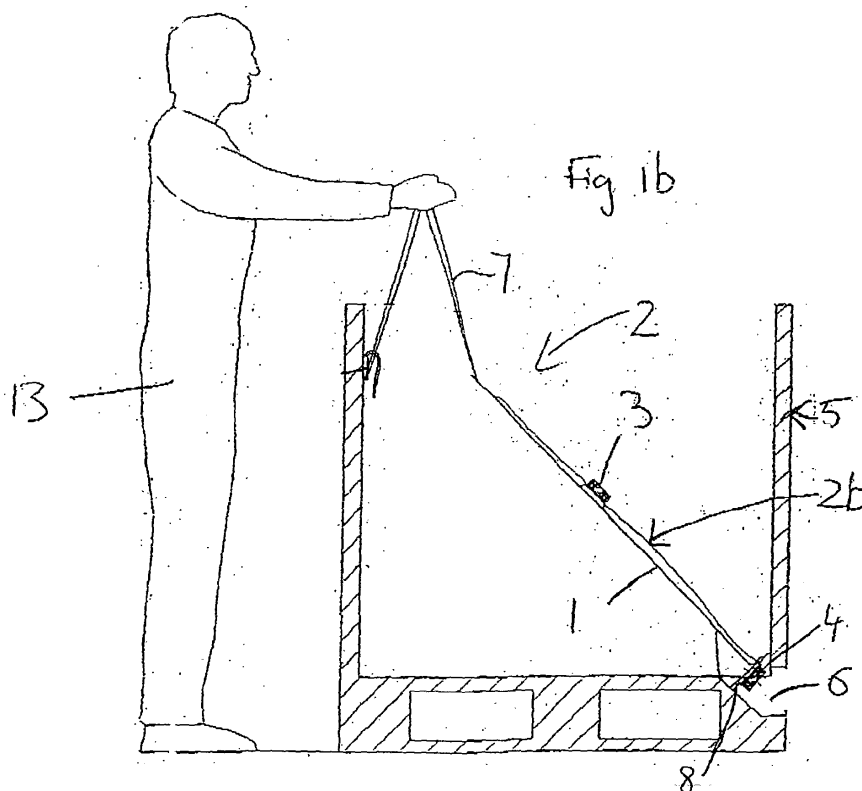
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(54) A liner assembly for a transport container

(57) A liner assembly (2) for use with a transport container. The liner assembly comprises a liner (2b) having an outlet gland (4) for co-operation with an outlet aperture (6) of a container (5) and a fill gland (3) through which contents of a product to be transported can be introduced into the liner (2b). The liner is mounted on a support sheet (1) of semi-flexible material. The sheet (1)

is adapted to engage the outlet gland (4) of the liner assembly (2) in a fixed position relative to the sheet (1). The sheet (1) is substantially the same shape and dimensions of a bottom surface of the container (5), so that when said liner assembly is introduced into a container, correct engagement of the outlet gland (4) with the discharge outlet aperture (6) can be assured.



Description

[0001] This invention relates to a liner assembly for a transport container.

[0002] Transport containers are well known for carrying various types of goods from one location to another, which locations can be some considerable distance apart. Different considerations apply in relation to the necessary structure of a container for carrying different types of product. The present invention is particularly concerned with containers which are used to transport liquid or semi-liquid products such as foodstuffs and therefore is concerned particularly with containers with which liners are used to contain the product within the container. Containers for this use are commonly known as IBCs (Intermediate Bulk Containers) which can be formed from metallic materials or moulded plastics as desired or as appropriate. Furthermore, known containers for this purpose are provided with a discharge outlet aperture in the container through which an outlet gland of the liner containing the product can project to allow easy emptying of the container.

[0003] Problems have been known to arise with existing containers and liners for this purpose insofar as it is very important that the gland assembly of the liner is able to be positioned correctly relative to the discharge outlet aperture of the container in order that the contents of the liner can be allowed out to the fullest extent possible. Such an exercise is capable of being carried out where the container concerned has either a dropdown panel forming a part of or the entire side of the container since it is then easy enough to gain access to the discharge outlet aperture to ensure that the outlet gland is located correctly for dispensing. However, in other containers which have no dropdown walls, it can be very difficult for an operative to correctly insert the liner into the container ensuring the correct location of the gland. This is because typically these containers for this purpose can be over 1 metre in height restricting access to the bottom of the container.

[0004] The present invention is designed to overcome this particular problem by providing a liner assembly which can be inserted into a container, without the need for a dropdown side, and which ensures in a simple manner that the outlet gland of the liner correctly locates in the discharge outlet aperture of the container.

[0005] Thus and in accordance with the present invention there is provided a liner assembly for use with a transport container, the liner assembly comprising a liner having a outlet gland for co-operation with an outlet aperture of a container and a fill gland through which contents of a product to be transported can be introduced into the liner, said liner being mounted on a support sheet of semi-flexible material, said sheet being adapted to engage the outlet gland of the liner assembly in a fixed position relative to the sheet, said flexible sheet being substantially the same shape and dimensions of a bottom surface of the container, wherein when

the said liner assembly is introduced into a container, correct engagement of the outlet gland with the discharge outlet aperture can be assured.

[0006] With this arrangement, it is possible to fit a liner assembly to a transport container in such a way that the outlet gland thereof is correctly located in relation to an outlet aperture of the container.

[0007] Preferably the liner is removably attached by attachment means to the flexible material. The attachment may take the form of hook and pile fasteners or any other form of attachment which is suitable or desirable.

[0008] Preferably the flexible support carries an arrangement which is operable to ensure that the outlet gland is fixed in position relative to the support and also to ensure full discharge of contents of the liner when delivered. In this respect, the mounting also includes a discharge ramp which ensures that the outlet gland when connected is lower than the line bottom surface when full in order to ensure that the entire product can be discharged.

[0009] According to a second aspect of the present invention, there is provided a transport container for liquid or semi-liquid products including a liner assembly according to the first aspect of the invention.

In accordance with a third aspect of the invention there is provided a method of fitting a liner assembly to a transport container by providing a support member, releasably attaching the liner to said support member in such a manner that an outlet gland of the liner is secured in a gland mounting of the support member, placing the liner assembly so far into the bottom of the container with said outlet gland locating purely in said container.

[0010] The invention will now be described further with reference to the accompanying drawings, of which:

Figure 1a is a cross sectional representation of one form of liner assembly in accordance with the present invention, and

Figure 1b is a cross sectional representation of a container into which a liner assembly is being fitted; **Figure 2** shows the liner assembly located in a container; and

Figures 3a, 3b and 3c show the steps followed in fitting the liner assembly to the container. Figures 3a and 3b show front and cross sectional views respectively of a person lowering the liner assembly into a container.

Figure 3c shows a front view of a closed container fitted with the liner assembly.

[0011] Referring now to Figures 1a and 1b there is shown a representation of a liner assembly in accordance with the invention.

[0012] The liner assembly 2 consists of a flexible or semi-flexible support sheet, a support body 1 to which a liner 2b is removably attached. The liner has a filling gland 3 of conventional type and an outlet mounting 8

attached having an outlet gland 4 through which it is intended that the contents of the liner can be effected once the liner has been filled with a suitable product. The outlet mounting 8 has a discharge ramp 12 which ensures the outlet gland, when fitted in the container, is lower than the liner bottom surface. This enables the entire product to be discharged from the container.

[0013] The support body 1 is at least sufficiently flexible to allow easy installation of the liner 2b into the container 5 and to allow easy location of the outlet mounting 8 and gland 4 in the outlet aperture of the container into which the liner will be fitted. The liner itself is formed conventionally from a plastic or thermoplastics material of any suitable type and maybe folded into a compact form on the support sheet, for easy handling such that the filling gland 3 lies on top of the sheet 1.

[0014] If desired, the liner may be removably connected to the support body 1 by any suitable removable attachment, for example by virtue of hook and pile fasteners (not shown).

[0015] The support sheet 1 may also be provided with a handle 7, such as a web strap or straps, or some other flexible material, at one end thereof, to enable the sheet, to be fitted into the container by an operator 13, as well as providing means for easily removing the assembly from the container.

[0016] The support body 1 is dimensioned so as to conform exactly with the internal bottom dimensions of the container 5 into which it is to be fitted.

[0017] Figure 2 shows the liner assembly mounted in a suitable container ready for filling through the filling gland 3. The outlet mounting 8 and gland 4 of the assembly co-operates with the outlet aperture 6, so that the liner contents maybe easily emptied from the container by operation of the outlet gland from the exterior of the container. As the liner is filled (not shown) through the filling gland 3, so the liner will take the form of the confines of the container 5. The handle 7 maybe attached to one or more brackets 9 located on the interior of the container so that the handle can be easily obtained by an operator for further arranging or, removal of the liner assembly 2.

[0018] The method by which the liner assembly is fitted into the container is shown in Figures 3 a, b and c.

[0019] According to the diagrams, it can be seen that with the liner 2b removably secured relative to the support sheet 1 and with an outlet gland 4 mounted in the gland mounting 8 at one end of the support sheet, the outlet gland 4 can be introduced into the interior of a suitable containers. The outlet gland of the liner is offered up to the outlet aperture 6 of the container and the support sheet 1 is allowed to drop into the bottom of the containers. Because the outlet gland 4 of the liner is locked in position by the gland mounting 8 formed as an integral part of the support sheet, and the support sheet is of substantially identical dimensions to the bottom of the container 11, the support sheet falls into the bottom of the container with the outlet gland 4 in position relative

to the outlet aperture 6 of the container and with the filling gland 3 on the top of the liner. The liner can then be unfolded if folded previously, to fill the bottom of the container. If it is desirable or necessary to remove or adjust the support sheet and/or the liner, an attachment handle 7 is provided at an opposite end of the assembly to the outlet gland 4. The operator 13 may thread the ends of the handle 7 through the two brackets 9 located on an interior wall of the container so that he or she has greater control in lifting, fitting and removing the sheet and/or liner assembly within the container. The brackets also provide means for attaching the handle to the container when the container is closed or sealed.

[0020] Once the assembly is positioned correctly within the container, the liner can then be filled with any suitable product in liquid or semi-liquid form, by attachment of an input hose (not shown) to the filling gland 3. Once the liner is full, the filling hose can be unattached from the filling gland and a top 14 (as in Figure 3c) can be placed onto the container to close the container off.

[0021] When the container is delivered to its intended destination, the contents of the container can be simply dispensed by attachment of a suitable dispense hose to the outlet gland 4 which forms part of the liner assembly. The discharge of the contents of the liner via the outlet gland is facilitated by the fact that the outlet gland of the liner is positioned at a location relative to the bottom of the liner therefor maximising the amount of product which will be discharged from the liner leaving little or no waste product in the liner which cannot be extracted.

[0022] With this arrangement, it is possible to ensure the correct fitting of the liner to a container with the outlet gland correctly located relative to an outlet aperture of the container in a very simple and easy manner.

It is of course to be understood that the invention is not intended to be restricted to the details of the above embodiments which are described by way of example only.

Claims

1. A liner assembly 2 for use with a transport container, the liner assembly comprising a liner 2b having an outlet gland 4 for co-operation with an outlet aperture 6 of a container 5 and a fill gland 3 through which contents of a product to be transported can be introduced into the liner 2b, said liner being mounted on a support sheet 1 of a flexible material, said sheet being adapted to engage the outlet gland 4 of the liner assembly 2 in a fixed position relative to the sheet 1, said sheet being substantially the same shape and dimensions of a bottom surface of the container 5, wherein when said liner assembly is introduced into a container, correct engagement of the outlet gland 4 with the discharge outlet aperture 6 can be assured.
2. A liner assembly 2 as claimed in claim wherein the

liner 2b is removably attached by attachment means to the support sheet 1.

3. A liner assembly 2 as claimed in claim 2 wherein the attachment means comprises hook and pile fasteners. 5
4. A liner assembly according to any preceding claim wherein the support sheet 1 carries an arrangement to which the outlet gland 4 is attached. 10
5. A liner assembly as claimed in claim 4 wherein the arrangement comprises an outlet mounting 8.
6. A liner assembly as claimed in claim 5 wherein the outlet mounting 8 comprises a discharge ramp 12. 15
7. A liner assembly according to any preceding claim wherein the support sheet 1 is provided with at least one handle 7. 20
8. A liner assembly according to any preceding claim wherein the at least one handle comprises a flexible material. 25
9. A transport container for liquid or semi-liquid products having a liner assembly in accordance with any preceding claim.
10. A method of fitting a liner assembly 2 to a transport container 5, providing a support member 1, releasably attaching the liner 2b to said support member 1 in such a manner that an outlet gland 4 of the liner 2b is secured in a gland mounting 8 of the support member 1, placing the liner assembly so far into the bottom of the container 5 with said outlet gland locating purely in said container. 30
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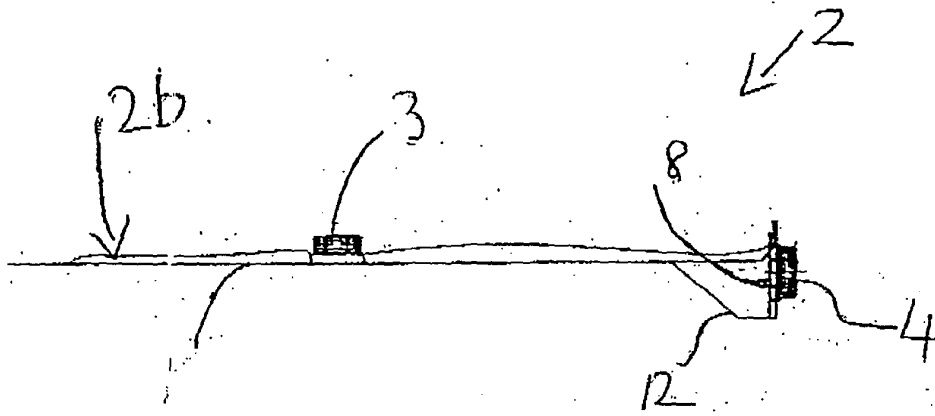


Fig 1a

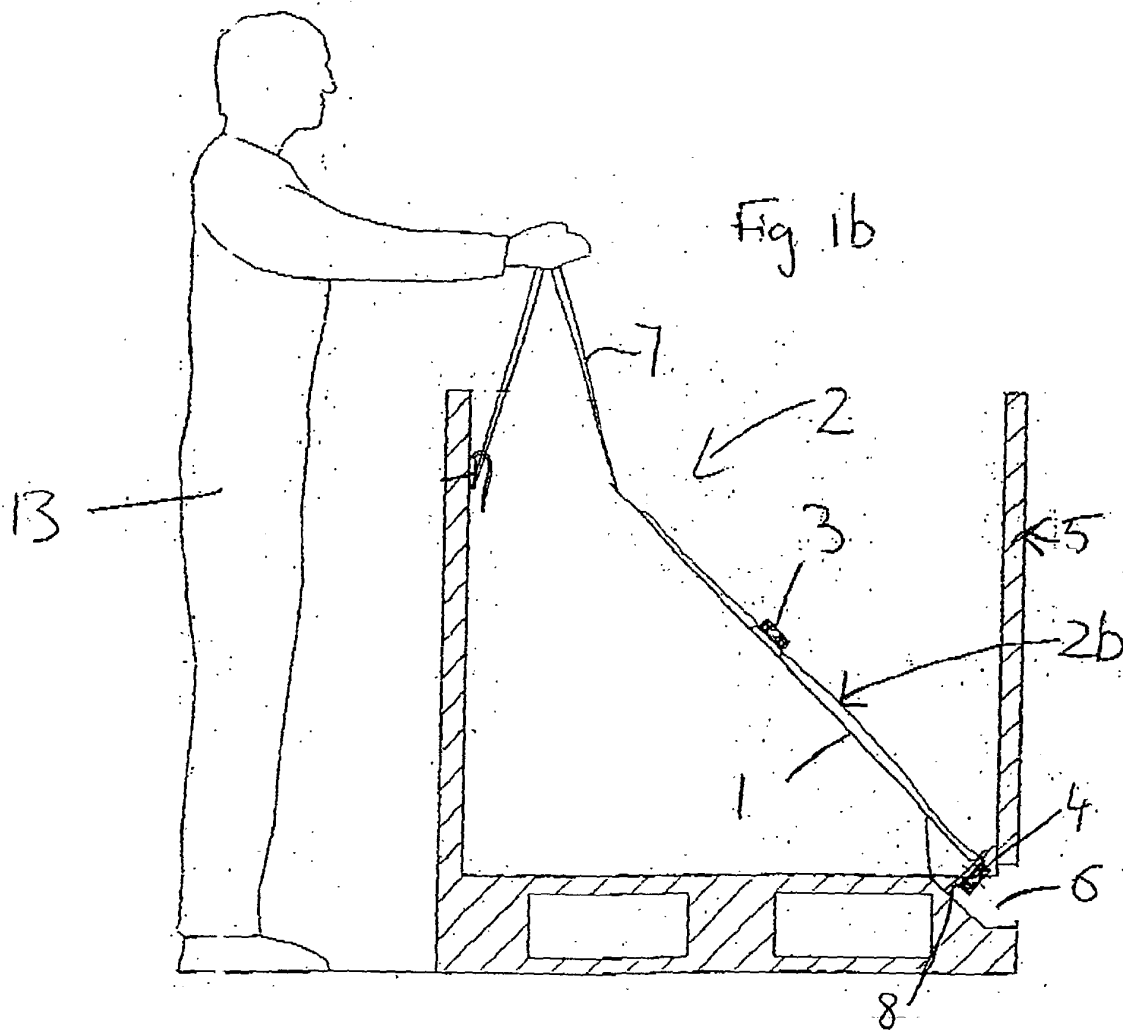


Fig 1b

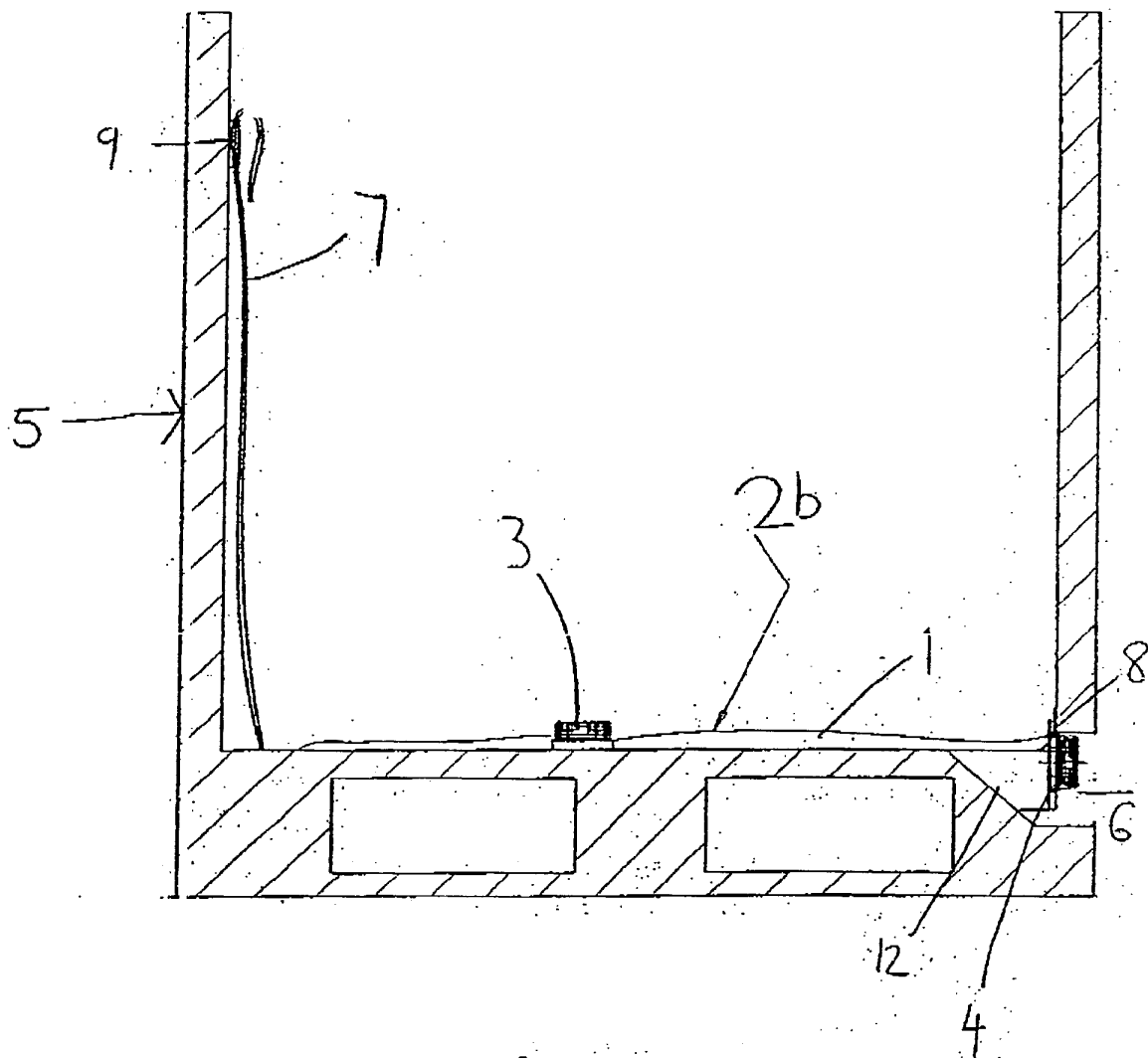


Fig 2

Fig 3b

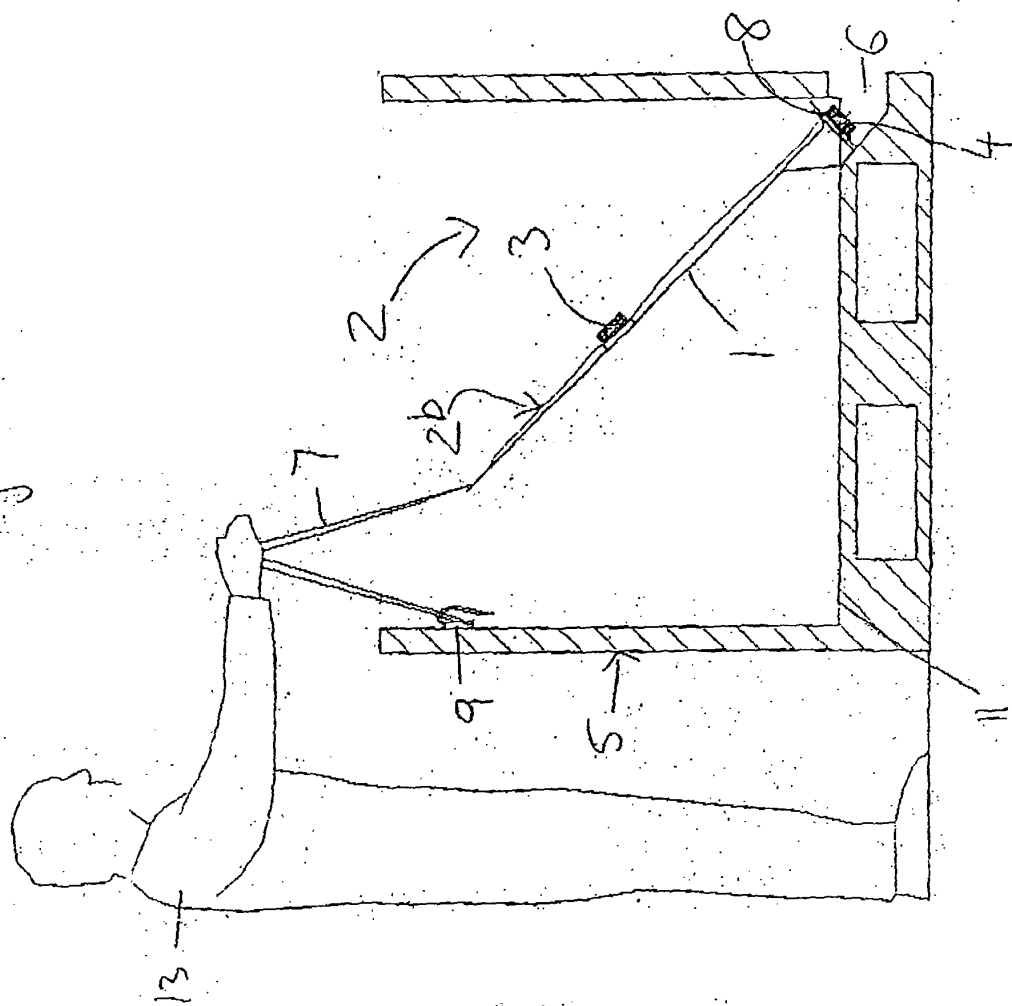
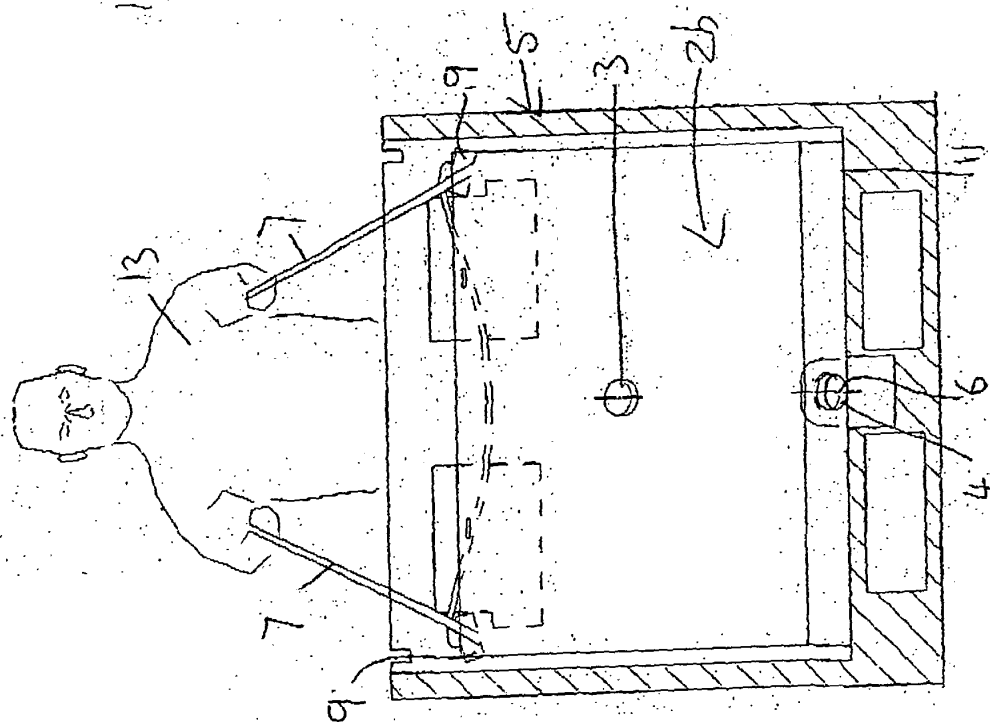


Fig 3a



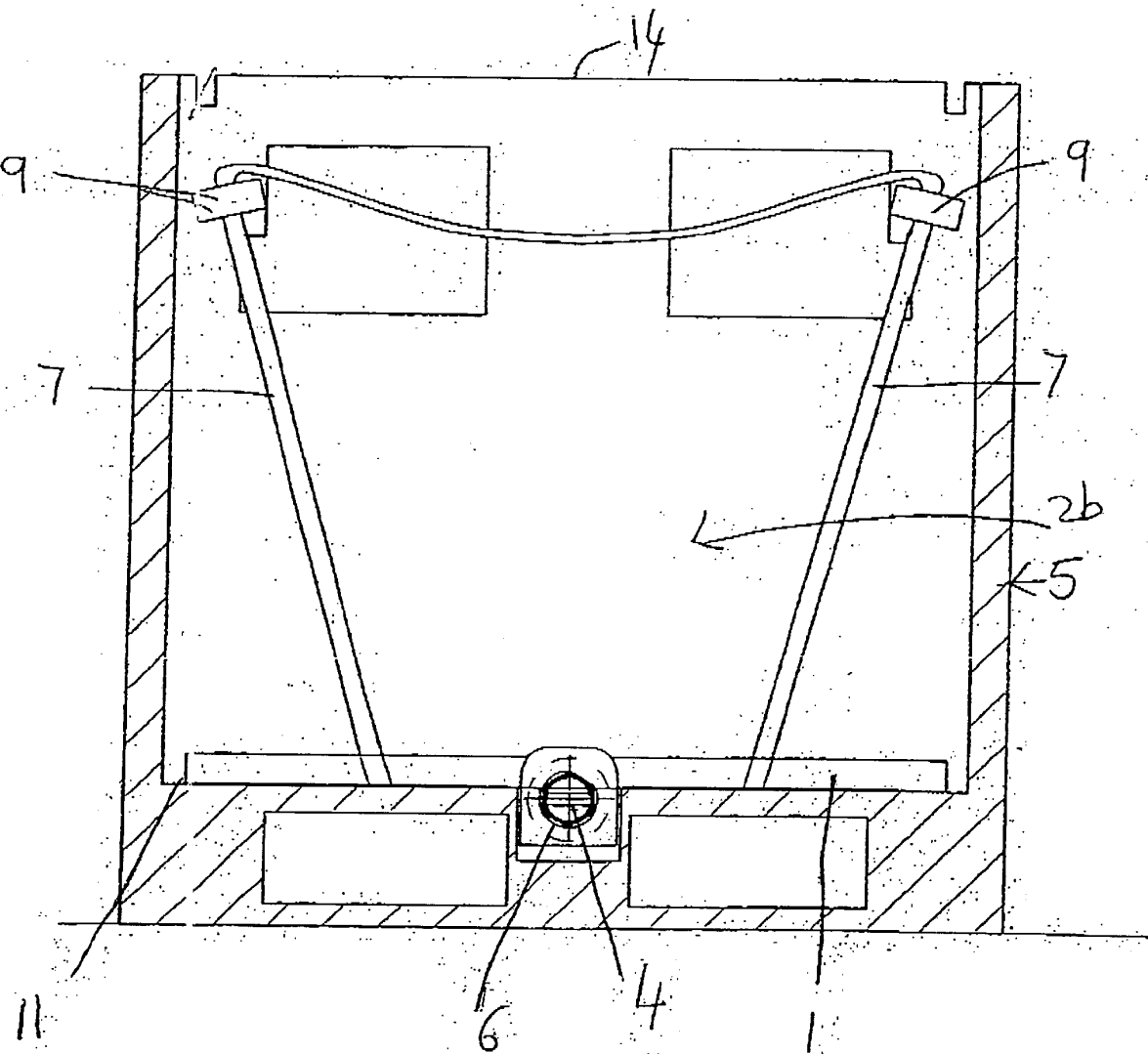


Fig 3 c