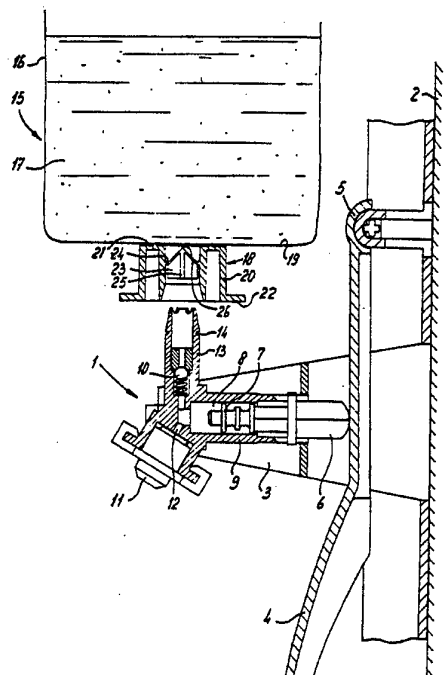




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(21) International Application Number: PCT/NL93/00226 (22) International Filing Date: 2 November 1993 (02.11.93) (30) Priority data: 9201919 3 November 1992 (03.11.92) NL (71) Applicant (for all designated States except US): BENT-FIELD EUROPE B.V. [NL/NL]; Einsteinstraat 3, P.O. Box 294, NL-2180 AG Hillegom (NL). (72) Inventors; and (75) Inventors/Applicants (for US only) : GANZEBOOM, Wilhelmus, Everhardus [NL/NL]; Rijnegomlaan 37, NL-2111 XM Aerdenhout (NL). TEN WOLDE, Wouter, Jan [NL/NL]; Duindoornlaan 30, NL-2116 TL Bentveld (NL).		(74) Agent: DE BRUIJN, Leendert, C.; Nederlandsch Octrooibureau, Scheveningseweg 82, P.O. Box 29720, NL-2502 The Hague (NL). (81) Designated States: AT, AU, BB, BG, BR, BY, CA, CH, CZ, DE, DK, ES, FI, GB, HU, JP, KP, KR, KZ, LK, LU, LV, MG, MN, MW, NL, NO, NZ, PL, PT, RO, RU, SD, SE, SK, UA, US, UZ, VN, European patent (AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG). Published <i>With international search report.</i> <i>Before the expiration of the time limit for amending the claims and to be republished in the event of the receipt of amendments.</i>
(54) Title: CONTAINER BAG UNIT (57) Abstract Container bag unit (15) for placing on a dispensing device (1). This container bag unit (15) is distributed in a sealed position and on placing on the dispensing device (1) an opening is drilled therein for metering the contents of the container to the dispensing device (1). According to the invention, the piercing means (23) are fitted in the container bag unit (15), in the coupling means (18). The dispensing device (1) is provided with means which act directly or indirectly on the piercing means, so that when the container bag unit (15) is placed on the dispensing device (1) the piercing means (23) become operational. 		

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Container bag unit

The invention relates to a container bag unit according to the preamble of Claim 1.

Such a container bag unit is known from US Patent Specification
5 4,576,313, which discloses a closed flexible bag, inside which the
coupling means are fitted. Moving these coupling means, which are in the
form of a pipe, to a certain position of the bag and then placing them in
the dispensing device produces a connection between said coupling means
and the dispensing device. In this case the bag material is pierced on
10 placing on the dispensing device. This piercing is carried out by a sharp
point provided in the dispensing device. Such flexible bags are preferred
from the point of view of transport and use. If, for example, the
contents of such bags have to be sprayed, the viscosity is important. If
an open container is used in such a case, after some time evaporation and
15 other environmental influences will cause thickening of the contents, so
that spraying becomes very difficult or even impossible. Another problem
is transport. In the case of open containers or containers which are
provided with a stopper, there is always a risk that they will open in
transit, in particular if they are being transported in aeroplanes and
20 the like where low pressure occurs. The result is that the whole batch,
and not just the container concerned, is rejected, because undesirable
leakage is often unavoidable. This disadvantage can be prevented by using
a sealed bag, but the problem here is that an opening has to be made
afterwards. For that reason, it is proposed in the prior art that the
25 dispensing device should be provided with a sharp pin or the like which
pierces a part of the container when the container bag unit is placed on
the dispensing device. Such a pin must meet high standards because it has
to last at least as long as the dispensing device. This means that it
must be made of a hardened steel part, with the result that there is a
30 real risk of injuries. For, it is quite conceivable for the user to act
so clumsily that, instead of the container bag unit, part or parts of the
body are brought close to the accommodation part of the dispensing
device.

German Gebrauchsmuster 8716846.4 discloses a rigid plastic
35 container provided with a cover which falls along with the level of the
contents. This to some extent prevents drying out, but the transportation
problem remains. If excess pressure is present in the container, the
cover will move outwards when there is a reduction in the ambient air.

This rigid plastic container is provided with a weakened part, by means of which an opening can be made before use by means of a pin fitted on the dispensing device. This pin fitted on the dispensing device is a projecting part, which gives rise to the abovementioned risk of injury.

5 LU-A-67.564 discloses a rigid plastic container which is provided with a sealing stopper. This stopper is pressed inwards by a pin projecting from the dispensing device. The use of such a stopper means that during transport and storage in particular there is a risk that pressure acting on the container bag will cause the stopper to shoot out,
10 with all the abovementioned consequences.

The object of the present invention is to avoid the disadvantages described above and to provide a container bag unit in which the container can be placed on the dispensing device without any problem.

15 This object is achieved in the case of a container bag unit of the type described above by the characterizing measures of Claim 1.

The invention is based on the idea of fitting the piercing means on the outside of the flexible bag. The laborious search for the pipe in the flexible bag and the positioning in a specific direction are
20 consequently no longer necessary. The place at which the coupling means are fitted is clear and well defined. Welding them to the container bag provides a sturdy connection, while there is little or no adverse effect on the strength of the bag, i.e. the bag also stretches inside the coupling means in the same way as before the fitting of the coupling
25 means.

Firstly, fitting the piercing means in the coupling means ensures that the piercing means need be used only once, namely purely for use with the container concerned. The result is that a relatively simple plastic part will suffice, and it can often be made of the same material
30 as the coupling means and as a part thereof.

Secondly, this means that the pointed side of the piercing means can be accommodated in the coupling means and that only the contact part - i.e. the part on which the pressure is to be exerted - of the piercing means is accessible from the outside. Of course, this contact
35 part need not be sharp, but must only be capable of transmitting forces.

According to an advantageous embodiment of the invention, the coupling means comprise a sleeve-shaped part for allowing through the product, inside which the piercing means are fitted. This is a particularly simple embodiment, and such a design can be made in one

construction operation. It is, of course, also possible to have loose piercing means which are confined between two edges in the sleeve-shaped part.

The piercing means can comprise any means known in the prior art, but it is preferable for them to comprise a pointed element with ribs, in which the point is, of course, directed towards the container to be pierced. According to a further advantageous embodiment in which the piercing means are made integral with the coupling means, a connection is made with the coupling means, or the abovementioned sleeve-shaped part, by means of a break connection. When said break connection is removed, the piercing means come away from the coupling means, and the container can be pierced by exerting pressure thereon from the side which is not pointed. The projecting part remaining on the coupling means can be used for, for example, snapping the accommodation part of the dispensing device into a groove. It is also possible to accommodate the piercing means in such a way that they are freely movable in the sleeve-shaped part.

The flexible bag and the coupling means are preferably made of the same material, but with different densities. An example is the use of high-density polyethylene for the bag and low-density polyethylene for the coupling means. Such materials are easily welded together. The bag can, of course, comprise a laminated construction in which the coupling means are welded only at the outermost layer of the laminate. Since polyethylene in particular is a relatively soft material, it is preferable in such a case to make the piercing means from another, harder material.

The present invention also relates to a dispensing device for use in combination with the container bag unit described above. According to the invention, it is provided with accommodation means for the coupling means, which accommodation means are provided with operating means for the piercing means. Said operating means can comprise a projecting part which engages on the non-pointed side of the piercing means. When the coupling means are made sleeve-shaped, it is possible for these accommodation means to lie extended inside the sleeve-shaped part. Through the exertion of a force, a break connection - if present - between the sleeve-shaped part and the piercing means will be removed, and force will then be exerted on the piercing means in order to pierce the container.

It goes without saying that the container bag unit described

above can be used on a dispensing device for dispensing any type of product. Through the use of a bag in which the material to be dispensed is stored, it can be guaranteed that the quality of such product remains substantially unchanged during the service life of the bag. For example, if soap is stored in containers which have to be aerated to replace the volume of soap dispensed, the viscosity of the soap will increase in the prior art through thickening. Through the use of a flexible bag it is possible that the quality of the product remains substantially the same. Because of that it is possible to dispense the soap not only in droplets but as a spray. Dispensing as a spray is particularly advantageous for soap materials. It has been found that when soap is dispensed as a spray 50 to 60% saving in soap can be realized while the user still finds that the quantity of soap dispensed is adequate. Through spraying the soap material will foam somewhat giving the user the impression that the substantial portion of soap has been received having a certain thickness. If dispensing in a spray is used, preferably this is realized in downward direction. This is particular true for dispensing of soap for washing hands. First of all the user is familiar with the fact that the material to be dispensed will egress from the lower side of the dispensing device. On the other hand it is not preferable that a spray is directed in horizontal or vertically upward direction. Finally dispensing from the lower side of the dispenser makes gravity feed of the related pump possible so that it is possible to obviate problems relating to riser tubers and so on. If soap is dispensed in a spray its viscosity is preferably between 0,3-4000 d.Pa.s (poise). It has to be understood that the flexible bag described above in combination with a spray dispenser having a pump can be provided with any kind of connection and is not limited to the coupling means as described above. It has been observed that 0,23 ml per spray is sufficient whilst in the prior art dosing quantities are about 1-1,5 ml. For dispensing spray it has been found advantageous to realize the nozzle head of the dispensing device as most protruding part of the dispensing device. This prevents contamination of portions surrounding the atomizing nozzle.

The invention will be explained in greater detail below with reference to an example of an embodiment shown in the drawing, in which:

Fig. 1 shows diagrammatically and partially in cross-section the container bag unit according to the invention, together with the dispensing device according to the invention, in the detached state before positioning thereof;

Fig. 2 shows the construction according to Fig. 1, in which the container bag unit is just placed on the dispensing device;

Fig. 3 shows the construction according to the preceding figures, in which the container bag unit is fully placed on the
5 dispensing device; and

Fig. 4 shows diagrammatically the flexible bag according to the present invention, having fitted thereon the coupling means in the transporting position.

Fig. 1 shows a dispensing device 1, which is fixed to a support
10 3, in turn fixed to wall 2. Operating lever 4 is fixed to support 3 by means of hinge 5. Operating lever 4 acts upon pressure piece 6, which in turn operates piston 7, which is accommodated inside a bore 8. Spring means may be present if necessary, for the purpose of driving piston 7 to the right in the figures, so that a pumping action is obtained by moving
15 operating lever 4 to the left. Bore 8 is accommodated inside housing 9. Housing 9 contains a non-return valve 10 in the channel leading to accommodation sleeve 13. Spray head 11 is present in the housing 9 and is connected by way of channel 12 to bore 8. Assuming a supply of, for example, soap into accommodation sleeve 13, when piston 7 moves to the
20 right material will be moved by way of non-return valve 10 into bore 8. A non-return valve may be present in nozzle 11, or the openings of the spray nozzle 11 are made so small that when piston 7 is moved back quickly such a vacuum is produced that the force of non-return valve 10 is overcome and material flows into bore 8. When lever 4 moves to the
25 left in the figures non-return valve 10 will close, due to the fact that pressure is built up inside bore 8. The material, such as soap material, will then be dispensed to the user in mist form by way of spray nozzle 11. It has been found that in the case of soap in particular this can lead to a considerable saving in use. When soap is not dispensed in the
30 form of a mist it has been found that approximately 80% is flushed away without being used. It has been found that a saving of at least 50% is possible through spraying.

The soap described above comes from the container bag unit 15. This comprises a bag 16, which is provided with soap 17. Container bag
35 unit 15 is also provided with a coupling 18. Bottom 19 of container 16 is attached to said coupling 18 without an opening being present here in the situation shown in Fig. 1. Coupling 18 comprises a sleeve 20, to which a piercing piece 23 is fixed by means of a break connection 24. Connected to sleeve 20 is an edge 21, which is in turn connected to flange 22.

Piercing piece 23 comprises an element provided with a point 26. This element is also provided with ribs 25, so that throughflow channels are bounded. Accommodation sleeve 13 is provided with a peripheral groove 14.

Fig. 1 shows the situation before coupling. In this case point 26 is directly below the bottom 19, but bag 16 is still completely sealed off.

Fig. 2 shows the situation when container bag unit 15 is placed without force on accommodation sleeve 13. The stop is formed through contact of the bottom side of piercing piece 23 with the top side of accommodation sleeve 13. When further pressure is exerted the bottom side of piercing piece 23, which is resting against accommodation sleeve 13, will be forced into position relative to sleeve 20. In this case the break connection 24 is first destroyed, and point 26 pierces bottom 19. In the course of this the piercing piece 23 shoots off into the bag 16, as shown in Fig. 3. On further movement, the parts of break connection 24 remaining on sleeve 20 snap into groove 14, so that a snap connection is obtained. The presence of flange 22 facilitates the placing of the container bag unit on the dispensing device.

Any plastic material known in the prior art can be used for the bag 16. The same applies to the coupling means. It is, however, preferable to use parts which are easily connected to each other. For example, the bag can be made of high-density polyethylene and the sleeve of low-density polyethylene, materials which are relatively easily welded to each other. It is possible here that the piercing piece may not be sharp enough to pierce the bag, particularly if the bag is made of a laminate in which the outer layer is made of polyethylene. In such a case the piercing piece must be made of a much more rigid material.

Fig. 4 shows the container bag ready for transportation, with the sleeve welded onto it. The piercing means are fitted in said sleeve.

Although the invention is described above with reference to one embodiment, it must be understood that numerous modifications can be made to it without going beyond the scope of the present application. In particular, as regards the actual pumping part, the dispensing device can be designed in any other way known in the prior art. Besides, as already stated above, the piercing point 26 can be a different part from sleeve 20. In such a case measures must be taken to hold piercing piece 23 inside sleeve 20. This can be achieved by, for example, a slightly clamping connection, or by fitting a peripheral edge below piercing piece 23 or peripheral projections in sleeve 20.

It is clear from the above that the piercing piece is used only once.

Claims

1. Container bag unit (15) for placing on a dispensing device (1), which unit comprises a flexible sealed bag (16) with the product to be dispensed, and coupling means (18) which can be connected to the
5 dispensing device, characterized in that the coupling means (18) are fixed by welding to the outside of the bag and are provided with piercing means (23), comprising an element provided with a point (26), which are fitted in such a way that when positioned on the dispensing device they pierce the wall of the flexible bag near the coupling means (18).
- 10 2. Container bag unit according to Claim 1, in which the coupling means comprise a sleeve-shaped part (20) for allowing through the product, inside which the piercing means are fitted.
3. Container bag unit according to one of the preceding claims, in which the element of the piercing means is provided with ribs.
- 15 4. Container bag unit according to one of the preceding claims, in which the piercing means are fixed to the coupling means by a break connection (24).
5. Container bag unit according to one of Claims 1 - 3, in which the piercing means are confined in the sleeve-shaped part in such a way
20 that they are freely movable in at least one direction relative thereto.
6. Container bag unit according to one of the preceding claims, in which the coupling means and the bag are made of the same material, but of different densities, such as low-density polyethylene and high-density polyethylene respectively, and in which the piercing means are made of a
25 more rigid material.
7. Dispensing device (1) for use with a container bag unit according to one of the preceding claims, comprising accommodation means (13) for the coupling means, which accommodation means are provided with operating means for the piercing means.
- 30 8. Dispensing device according to Claim 7, in which the operating means comprise a projecting part.
9. Dispensing device according to Claim 7 or 8 in conjunction with Claim 2, in which the accommodation means are designed to be accommodated inside the sleeve-shaped part.
- 35 10. Dispensing device according to one of Claims 7 - 9, which is provided with a spray-producing head (11).
11. Dispensing device according to Claim 10, which is equipped for dispensing soap (17).

fig-1

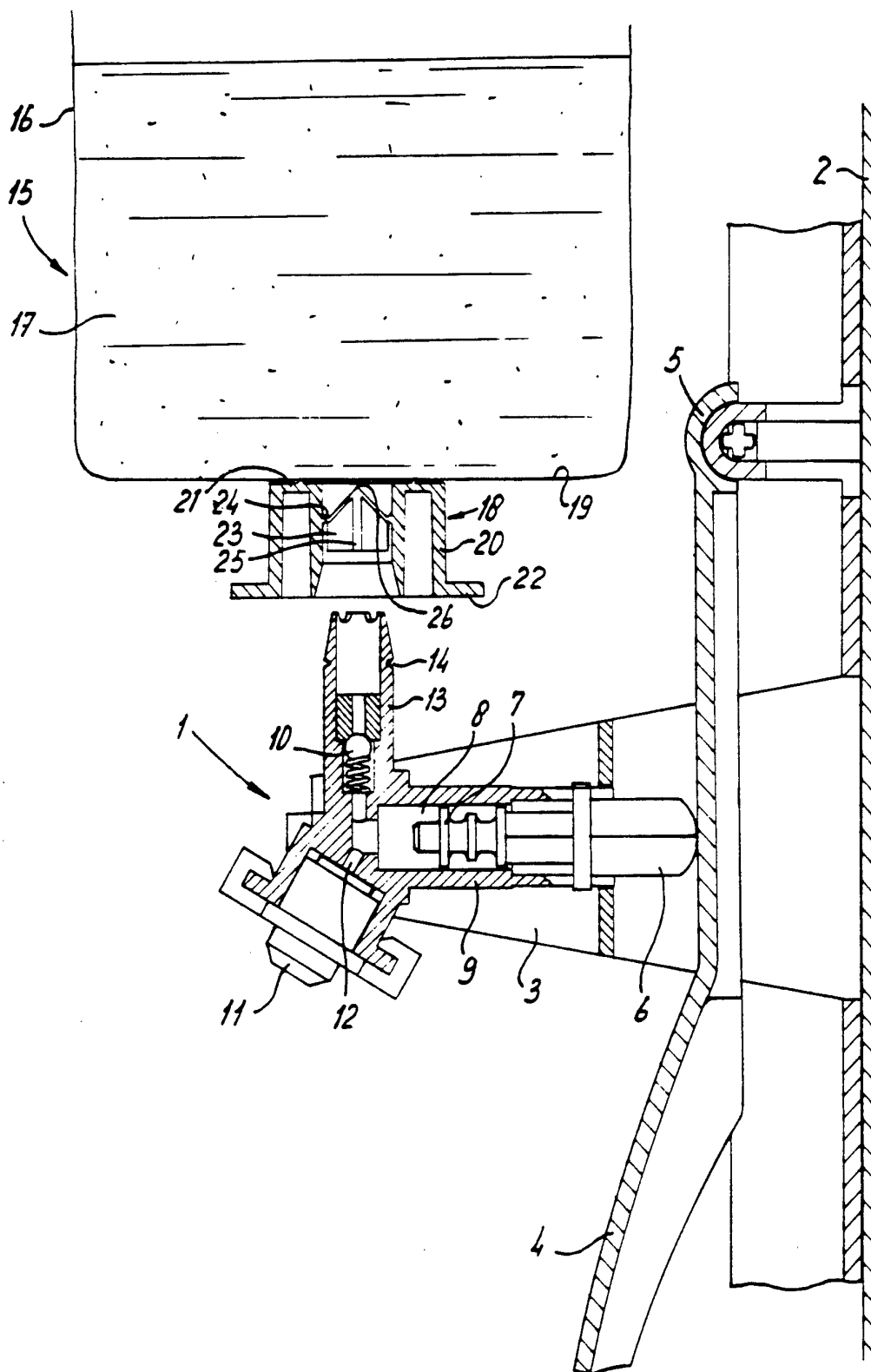


fig-2

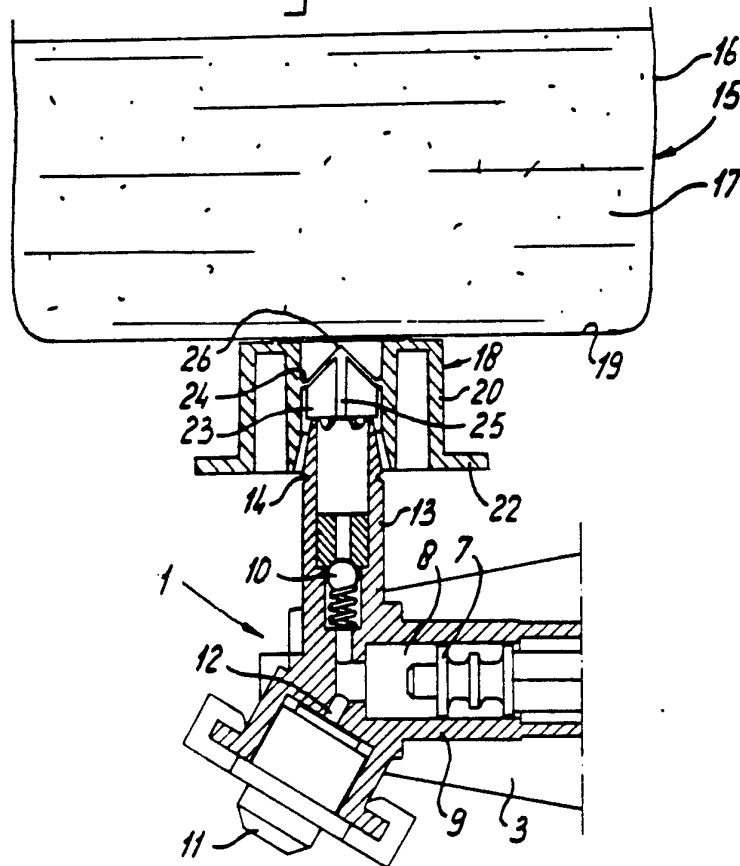


fig-3

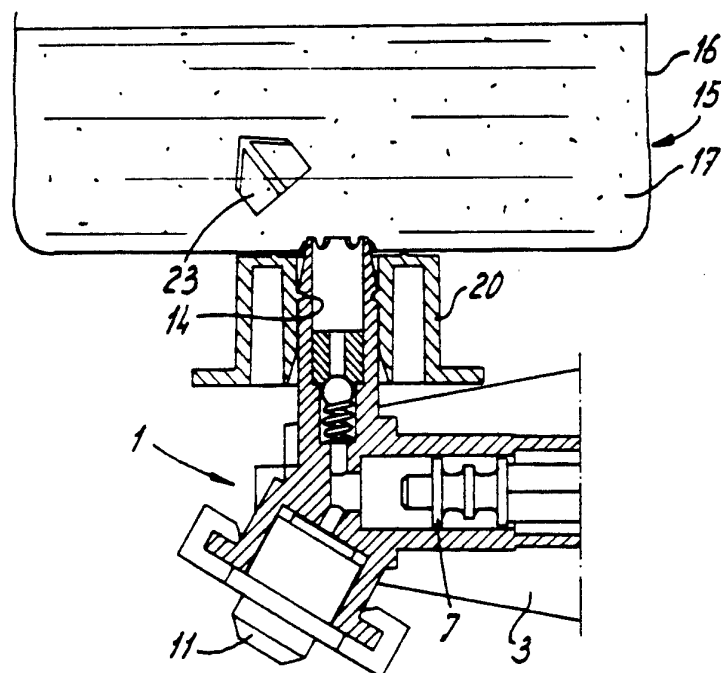
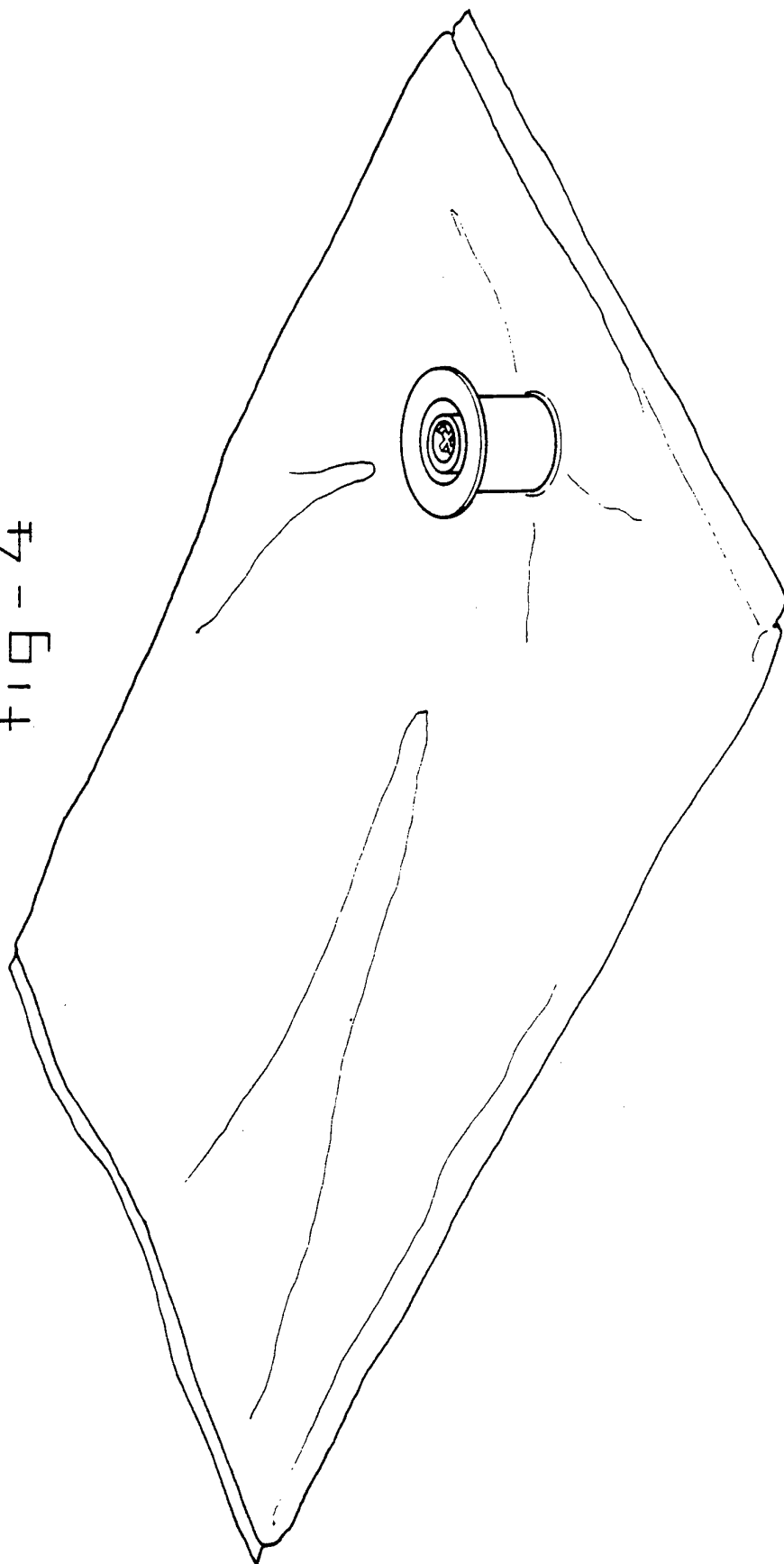


fig - 4



INTERNATIONAL SEARCH REPORT

International Application No
PCT/NL 93/00226A. CLASSIFICATION OF SUBJECT MATTER
IPC 5 A47K5/12 B65D51/22

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC 5 A47K B65D A47G

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	DE,U,87 16 846 (OPHARDT PRODUCT HERMANN OPHARDT) 11 February 1988	7,8
Y	see page 2, line 23 - page 3, line 21	9-11
A	see page 3, line 35 - page 4, line 19; figures	1,3,5

Y	LU,A,67 564 (PAPIER-WERKE "WALDHOF-ASCHAFFENBURG" AG) 13 July 1973	1-5,9
A	see page 2, line 13 - page 3, line 6 see page 3, line 1 - page 5, line 14; figures	7,8

Y	FR,A,2 499 517 (ETS GIRAUD-GALLAIRE) 13 August 1982	1-5
A	see page 1, line 1 - line 9 see page 2, line 14 - page 4, line 7; figure 2	7

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☒ Further documents are listed in the continuation of box C.☒ Patent family members are listed in annex.

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Date of the actual completion of the international search

24 February 1994

Date of mailing of the international search report

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INTERNATIONAL SEARCH REPORT

International Application No
PCT/NL 93/00226

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT		
Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	EP,B,0 127 449 (YOSHINO KOGYOSHO CO. LTD.) 26 August 1987 see column 1, line 5 - line 25 see column 2, line 3 - column 3, line 2; figure ---	10,11
A	FR,A,2 617 825 (SERIS) 13 January 1989 see page 2, line 1 - line 13; figures ---	1-3,5
A	US,A,4 576 313 (SMITH ET.AL.) 18 March 1986 see column 1, line 65 - column 2, line 34 see column 4, line 10 - line 51 see column 6, line 50 - column 7, line 24; figures 3,7 ---	1,6,11
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INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/NL 93/00226

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