



(12) **EUROPEAN PATENT APPLICATION**

(43) Date of publication:
05.07.2006 Bulletin 2006/27

(51) Int Cl.:
D06F 5/00 (2006.01)

(21) Application number: **05100001.6**

(22) Date of filing: **01.01.2005**

(84) Designated Contracting States:
**AT BE BG CH CY CZ DE DK EE ES FI FR GB GR
HU IE IS IT LI LT LU MC NL PL PT RO SE SI SK TR**
Designated Extension States:
AL BA HR LV MK YU

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(54) **Portable manual laundry device**

(57) Portable laundry device is an easily transportable water tight, expandable apparatus where the user can wash fabric articles. The device consisting of a water tight flexible container (1), means of closing it water tight (2), friction means (3) attached to the inner surface of the device, at least one dispensing mechanism (4) attached to the main body of the container containing the detergent and a detachable seal (5) that can release the detergent

inside the device. The process of washing fabric articles using the portable laundry device has the following steps. First you release the detergent, place the fabric articles and the water in to the device. After the device is sealed water tight the user can roll the device back and forward so the friction between the fabrics and the inner surface of the device is sufficient for the washing process to be completed.

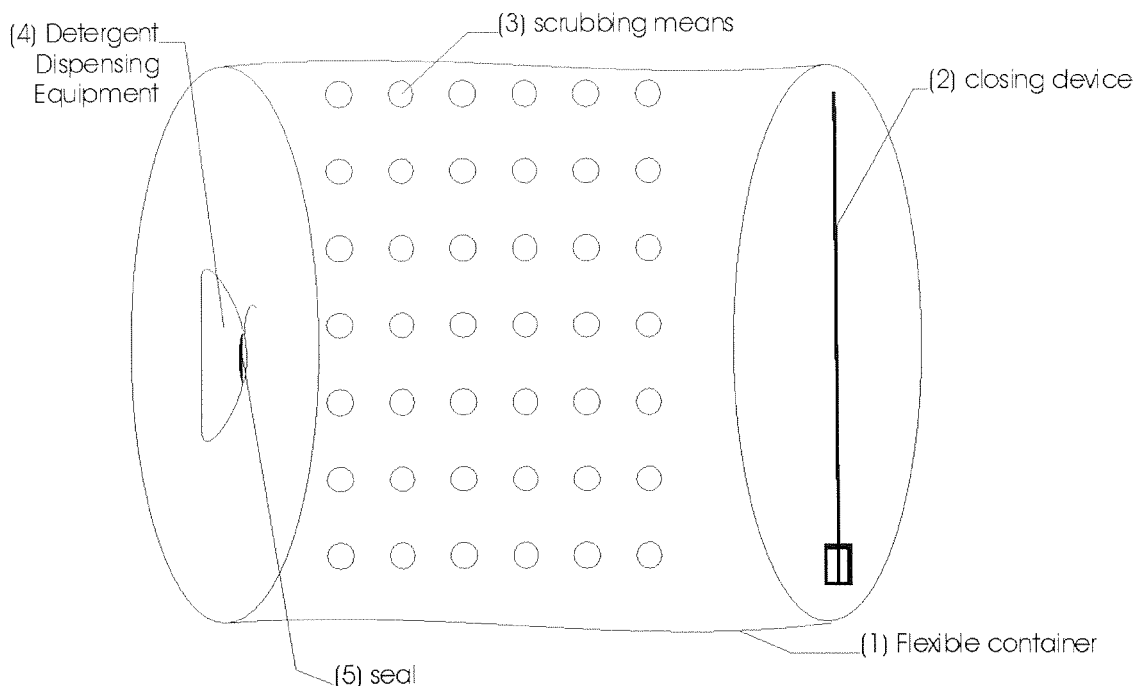


Fig. 1

Description

Technical field

[0001] This invention is about a portable laundry device containing the cleaning agent ready to wash fabric articles, at any location.

Background art

[0002] In our times usual hand washing is done in a specially modified bucket for this purpose, in the sink or any other place where we can contain water, cleaning agent and the clothes for a certain period of time.

[0003] Prior art with publication number WO 02/095117 is a similar device for cleaning fabric articles using a pouch.

[0004] Prior art with publication number WO 98/58113 is a washing apparatus for cleaning fabric articles.

[0005] Prior art with publication number GB 460424 is a hand washing apparatus for cleaning clothes.

Disclosure of the invention

Technical problem

[0006] The problem with prior art is that the most of them are not conveniently portable or they are designed to either work in connection with a laundry machine or to clean local stains at fabric articles. If you go for a trip it is not very convenient to carry the bucket with you in the airplane for your laundry. Also in some hotels they do not allow you to do laundry in the bathroom or when you go for camping you have to carry bulky equipment. There is no small portable device, free of mechanical parts, which can contain the cleaning agent and the water in a water tight container that will allow you to do your laundry away from your home. Finally in order to hand wash your clothes you have to wet your hands if you do not have gloves. If your hands are sensitive to the cleaning agent then it is a problem if you do not have the gloves. So either you have to buy gloves, cleaning agent and a bucket or carry them with you during travelling in order to do your hand washing laundry.

[0007] WO 02/09117 is a portable pouch that can be used for cleaning fabric articles. The problem of prior art is that the pouch can not be closed water tight. The user has to use it in connection with other washing apparatus.

[0008] WO 98/58113 is a washing apparatus for cleaning fabric articles. It can not accommodate a lot of fabric articles at the same time, and is not designed to soak the fabrics inside a water / detergent mixture due to their water detergent absorbing material placed inside the apparatus. The device has no scrubbing means that can increase the efficiency of the detergent. Is not suitable for the every day use.

[0009] GB460424 is a hand washing apparatus for cleaning clothes. Said apparatus has no scrubbing

means were they can increase the efficiency of the device. Also the cleaning operation was done by a stamping movement of the feet. As a result not effective friction between the fabrics was created since the force acting to the clothes is compressive and not shear, which gives the best results. Also detergent has to be supplied separately.

Technical solution

[0010] Above problem can be solved by the portable, manual laundry device. It is a container that can enclose detergent, water and fabric articles inside said container water tight. Since the device is made of flexible material, it is expandable and contains friction means for the improvement of the efficiency of the cleaning agent. Also a detergent dispensing mechanism is part of the device having as a result the device to be a one stop solution. The user purchasing one device which has all it is required for laundry.

Advantageous effects

[0011] It is cheap to manufacture, transportable, expandable, light on weight can enclose water and clothes water tight and can be easily packed inside a small suitcase or bag pack. Since this device is laundry dedicated the user can soak the laundry inside the device with the water for the required time without constraining the use of sink, bathroom or other means from their normal use. Using above mentioned device the user can wash clothes everywhere. The user can do laundry while he is in the move. Just put water inside close it and place it inside a suitcase or in the car boot. If no hot water is available since this device is portable can be placed on top of the radiator or leave it on the sun. Since the device is totally enclosed the sun will built up the temperature in a satisfactory level, at hot climates, in order the detergent to act sufficient.

[0012] Also using above mentioned device the users hands does not have to come in contact with water and cleaning agent in order to hand wash the clothes. So it is suitable for hand washing fabric articles for users with sensitive hand skin.

[0013] The scrubbing means, in the interior, in connection with the repeatedly rolling of the device can perform the required scrubbing for the fabrics to be cleaned.

[0014] The device may be provided as a kit, including the cleaning agent. By doing so, the user is purchasing and afterwards caring during travelling one device which is a complete solution for his laundry.

Brief description of the drawings

[0015] Portable manual laundry device consisting of a cylindrical container (1) made of flexible water tight material. Preferably by a transparent soft plastic membrane (some possible materials: polyethylene, polyvinyl chlo-

ride, polypropylene, polystyrene film, polyacrylonitrile, PE film). The device has an opening where it can be closed water tight with a closing device (2). The inner surface of the device is fitted with scrubbing means (3) in order to create friction between the fabrics and the inner surface of the device. Means of dispensing detergent (4) where the detergent can be stored and released in to the bag when required. A simple valve mechanism (5) that will keep the detergent in the dispensing apparatus until the user will release it to the device. The drawings describe a simple peel of membrane but it can be also a mechanical tab or a mesh pouch (5b).

[0016] Fig 1 describes the device completely expanded, deployed, and ready to accommodate the fabric articles, water and cleaning agent.

[0017] Fig 2 describes the device at folded position, when it is not used were it can easily be transported in a suitcase.

[0018] Fig 3 describes the device at folded position also but the access opening is in deferent position.

[0019] Fig 4 and 5 describe other possible shapes of the device and closing arrangement.

[0020] Fig 6 describes the device with attached pair of gloves suitable for scrubbing the fabrics in the device. The device is described at a completely expanded position ready to use.

[0021] Fig 7 describes a meshed pouch working as a detergent dispensing mechanism. This pouch to be attached inside flexible container.

[0022] Fig 8 describes the device wherein the closing means are made of stiff material. The rounded edge (9) seals water tight the device when is firmly positioned inside the groove (8) witch is part of the stiff water tight closer (7). Fig 8a and 8b describe the device with a deferent closing arrangement. Fig 8a uses a ring of flexible, elastic, material permanently attached to the flexible container. Fig 8b uses a ring (10) made of stiffer material than the one used in flexible container, preferably same as closure (7), witch is attached to the flexible container. The rounded edge (9) is attached to this stiff ring (10).

[0023] Scrubbing means (3) can be a brush, a surface with increased friction coefficient attached to the device, a surface with a series of uneven exaggerated surfaces like raffles, spikes with rounded ages so they do not penetrate the device's main body. Also the inner surface of the device could be manufactured in such a way that instead of been flat and smooth, exaggerated anomalies can be created. Preferably as a wavy pattern or round lumps.

[0024] Closing means (2) could be any broadly available to industry water tight closers. The drawings describe a water tight zip, also known as clip n seal, used in plastic water tight bags that can enclose and protect food, electronic consumer accessories or other sensitive products, from air and water. Alternatively the edges of the access opening can be folded (some manufacturers call it roll top closure) secured by a scrunching tape making the flexible container water tight. Fig 4 and 5 describe

a folded water tight mechanism that can be secured folded by a scratching tape or an elastic string able to apply the required pressure in order to maintain the edges folded.

Best mode for carrying out the invention

[0025] Unfold the cylindrical, or other shapes, laundry device (1) open it using the opening means (2) and insert the fabrics you want to wash. Add cleaning agent or release it from the detergent dispensing device (4), if fitted, by removing the seal (5) then add water and close the cylindrical bag. Then you can either leave it for the required time, just soaking the fabrics, or roll the cylinder back and forward repetitively to the floor with your feet or to the table with your hands. By rolling you create friction between the fabrics and also between the fabrics and the inner surface of the device main body were scrubbing means have been attached to. After washing has been completed the water - detergent mixture can be removed from the device by opening it. You can rinse the fabrics by adding fresh water to the said laundry device. By applying pressure to the device and placing the open access means (2) at a lower point the water drains from the fabric outside the device. After the clothes have been drained then you can dry your fabrics in the bag if you want. Either leave the bag open on top of a radiator or you can blow hot air in to the bag threw the open access means (2) using a hand held hair blower or similar device.

Mode(s) for carrying out the invention

[0026] The portable laundry device can be of any geometrical shape like square, trapezium, sphere, diamond, parallelogram, triangle, cone, bag, etc. If other shapes than cylindrical is used rolling the device might not possible. Using a square or other shapes mentioned above the user can create friction between the scrubbing means and the fabric articles by having the base of the square stationary and move back and forward or rotational the upper surface. Scrubbing means have to be fitted on those surfaces.

[0027] Also the device can be a combination of surfaces with flexible and inflexible material. For example in the case of a cylindrical bag or cone shape the base of the cone can be made of inflexible, stiff, material. So this part can act as a stationary part of the device during operation. Also at the same time the inflexible part can work as the water tight closer of the opening at the flexible part, in our example the cylindrical bag or cone base.

[0028] Scrubbing means can also be objects that can move freely inside the device. They can be of any shape and the surface can have some anomalies like ruffles or spikes with rounded ages in order to create the required friction between the fabrics for an improved efficiency of the detergent. These scrubbing means can work as detergent dispensing means at the same time.

[0029] Alternatively the detergent can be contained in

a dispensing apparatus attached to the main body (4) of the bag. The dispensing apparatus that contains the cleaning agent can either be built in to the bag, part of the main structure made of the same material, or foreign body attached in the interior of the bag or move freely inside the device. Depending of the type of detergent that will be used in the device the dispensing apparatus can either be of a meshed material (5b) for solid and powder or capsule type for liquid. In case of a disposable bag several pockets can be available so it can be used multiple times. The pockets can release the detergent either by removing a disposable sealing (5) or by tearing the side of the pocket that is in facing the inside of the device at a predetermined point where structure of the pocket is intentionally weaker.

[0030] The opening (2) that allows access to the interior can be any were on the surface of the device, for example on the side, in figure 1 or can be positioned on the end of circular side as described in figure 3 and on the top in figure 6. The "clip n seal" mechanism can be align with the surface of the flexible container or it can be slightly exaggerated, specially if the sealing mechanism is of zip stile using a sliding part in a such a way that it slides way from the closing seal when totally closed.

[0031] Also small surface anomalies can be installed in the outer surface of the cylinder in order to perform a foot massage or just to create a better grip for the user during operation.

[0032] Alternatively the device instead of having scrubbing means in the interior that will enhance the scrubbing between the clothes, a set of gloves (6) can be permanently fitted (See Fig 6). The gloves made of flexible material, most probable the same as the main body, are part of the device's main body, were inside the fabrics and water detergent mixture is contained. See figure 6. So the user after placing fabric articles, water, detergent and close the device water tight can scrub the fabrics using the gloves keeping the device stationary. The user can scrub the fabrics as they wish using their hands protected by the gloves. After the user is satisfied with the scrubbing, cleaning, of the fabric articles the water mixture can be removed from the device by opening it. The user can rinse the fabrics by adding fresh water to the device. By applying pressure to the device and placing the access means (2) open at a lower position the water drains from the fabrics outside of the device. The user has to make sure that water inside the gloves attached to the device is removed also, if trapped. After the clothes has been drained the user can dry the fabrics by blowing hot air in to the device using a hand held hair blower or just placing device on top of a heat source.

Claims

1. Portable laundry device that comprising of: a: Portable, hand held, water tight, flexible container, that can accommodate at least one fabric article, clean-

ing agent and solvent for washing. b: Means of access to the interior. c: Means of sealing water tight said access opening. d: Means that can increase the friction between the fabric articles during operation, whereby the efficiency of the cleaning agent is improved.

2. Portable laundry device that comprising of: a: Portable, hand held, water tight, flexible container, that can accommodate at least one fabric article, cleaning agent and solvent for washing. b: Means of access to the interior. c: Means of sealing water tight said access opening. d: Comprising of at least one dispensing apparatus containing cleaning agent that can be released in to said container when required.

3. Portable laundry device according to claim 2, further including means that can increase the friction between the fabric articles during operation.

4. Portable laundry device according to claims 1 and 2, having predetermined shape that allows the user to roll said device.

5. Portable laundry device according with claim 2, includes means of releasing the cleaning agent contained inside said dispensing apparatus to the interior of said flexible container.

6. Portable laundry device according with claim 1 and 3, wherein said means of improving friction comprises of at least one glove attached to said flexible container.

7. Portable laundry device according with claim 1 and 3, wherein said means of improving friction comprises of at least one surface anomaly attached on the inner surface of said flexible container, whereby the total friction coefficient of the inner surface of said flexible container is increased.

8. Portable laundry device according with claims 1 and 3, wherein said means of improving friction comprises of at least one object which can move freely inside said flexible container during operation wherein the surfaces of said objects comprising of surface anomalies.

9. Portable laundry device according with claims 1 and 2, wherein at least one surface of said flexible container is made of stiff material, whereby flexible container can be partly folded.

10. A process for cleaning fabric articles inside a water tight, portable, hand held, flexible container including means that can increase the friction between the fabric articles comprising the following steps: a: Inserting fabric articles, water and cleaning agent in to said

flexible container. b: Sealing said container water tight using said means of closing the access opening.
c: Manually create friction between the fabric articles and said scrubbing means by rolling and or creating relative motion between at least tow sides of said container and or scrub the clothes with your hand using at least one glove attached to said container, if fitted.

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11. A process for cleaning fabric articles according with claim 10 wherein cleaning agent is released inside said flexible container from at least one dispensing apparatus containing the cleaning agent positioned inside said flexible container.

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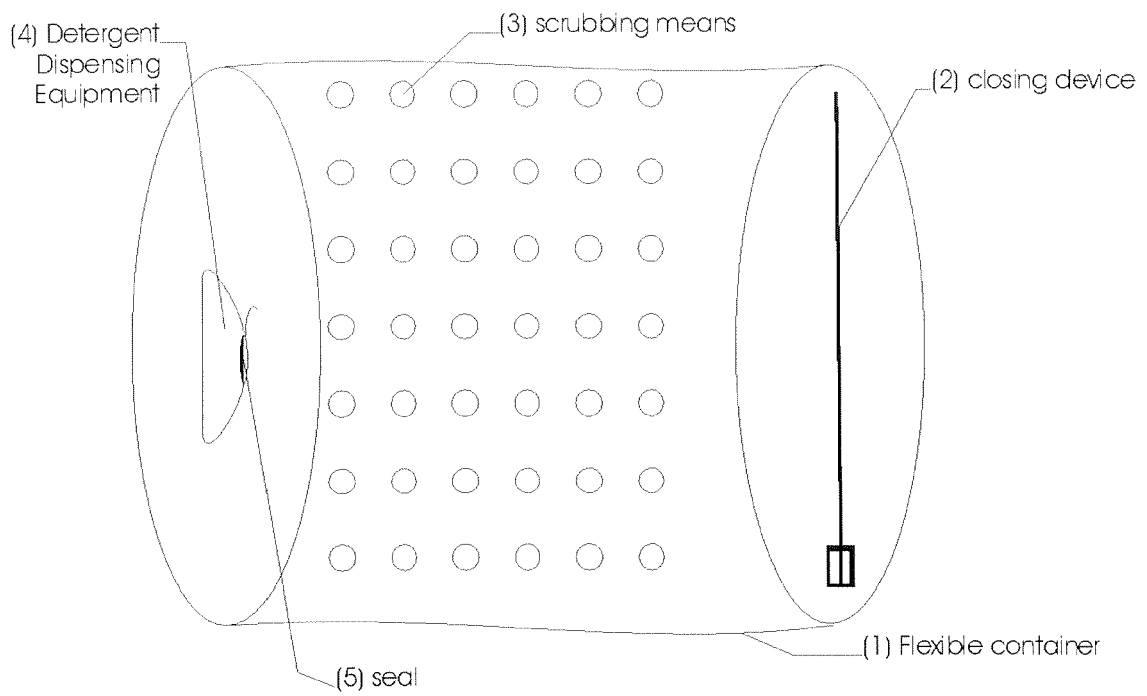


Fig. 1

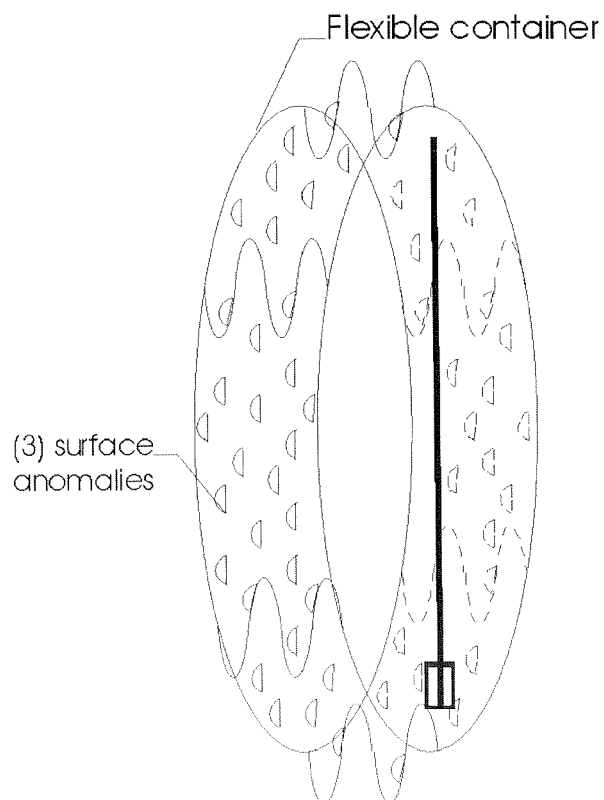


Fig. 2

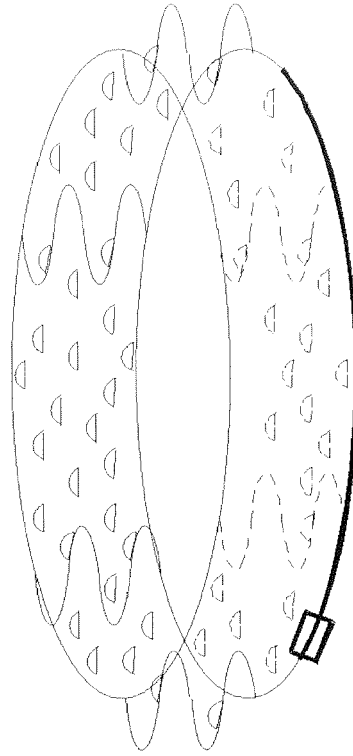


Fig. 3

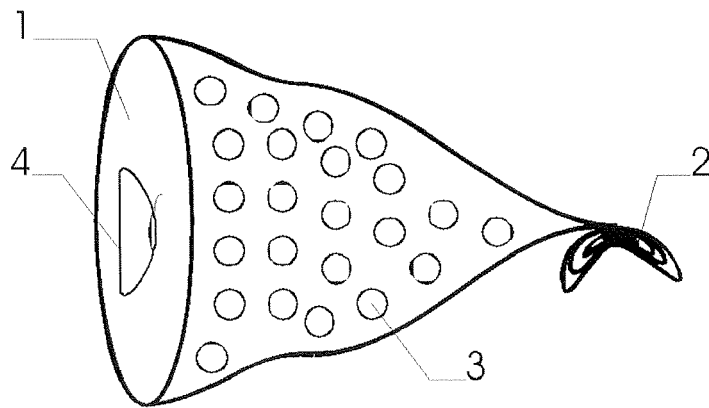


Fig. 4

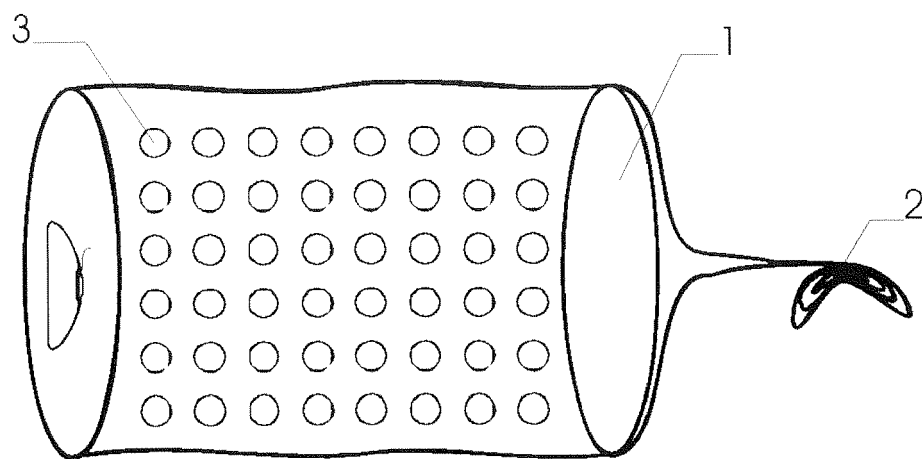


Fig. 5

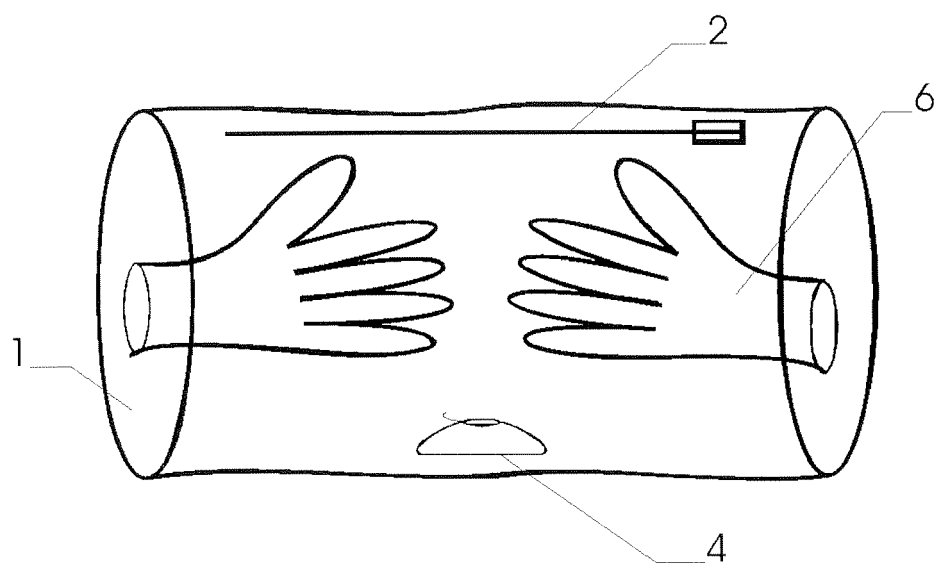


Fig. 6

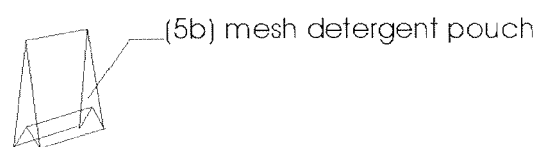


Fig. 7

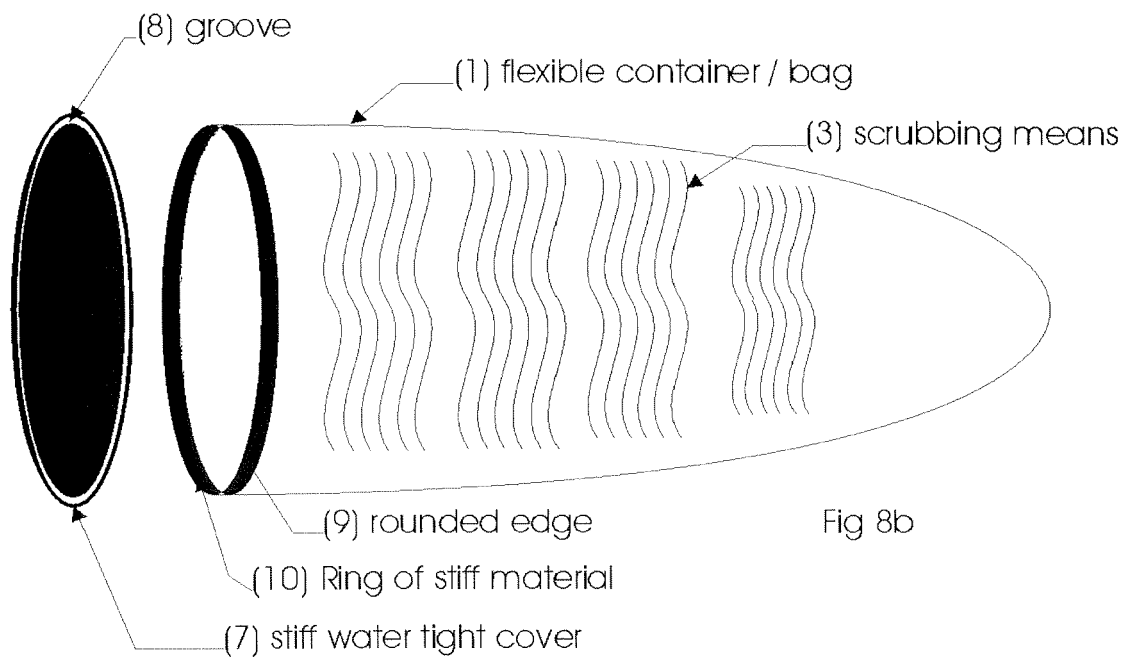
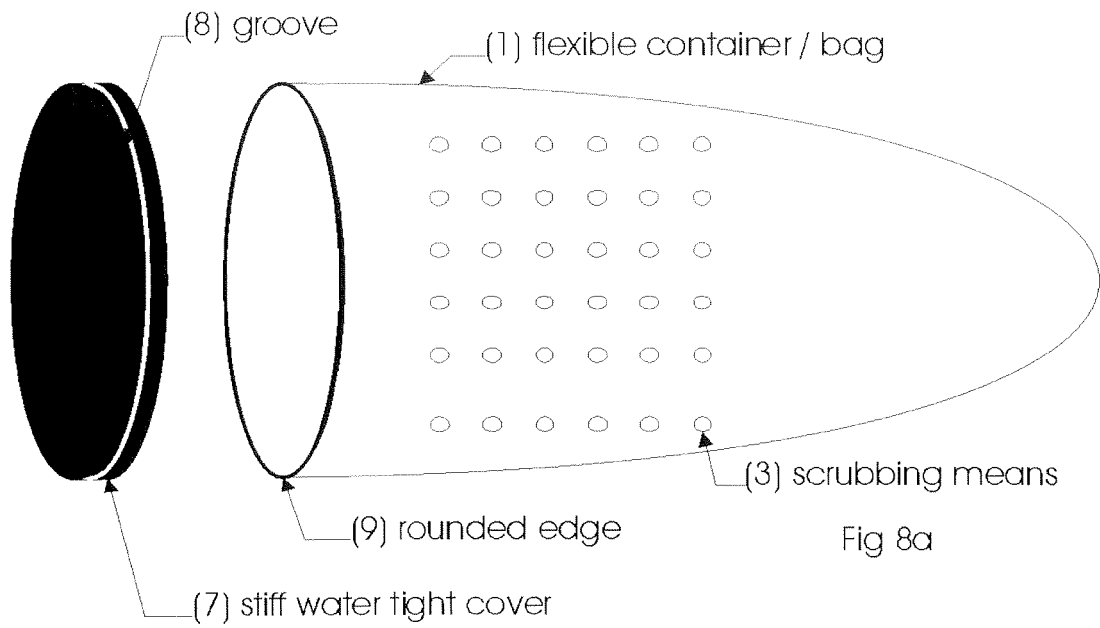


Fig. 8



European Patent
Office

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Application Number
EP 05 10 0001

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A	-----		TECHNICAL FIELDS SEARCHED (Int.Cl.7)
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The present search report has been drawn up for all claims			
Place of search Munich		Date of completion of the search 13 May 2005	Examiner Spitzer, B
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document		T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document	

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**ANNEX TO THE EUROPEAN SEARCH REPORT
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This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.
The members are as contained in the European Patent Office EDP file on
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