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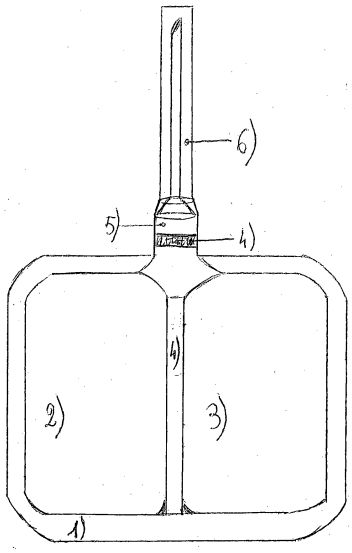
(54) MULTI-CHAMBER FLUID BAG WITH NEEDLE

(57) Flexible fluid bag (1) comprising a first chamber (2) for a liquid solvent, a second chamber (3) for a dry concentrate, the first and the second chamber separated by a first reversible partition (4) configured to be broken by manually pressing the bag in order to mix the solvent and the concentrate. The bag (1) is connected to a needle (6) through a hollow exit channel (5). A second reversible partition (4) is placed in the hollow exit channel to prevent fluid from exiting the bag during the mixing phase.



1) Soft hollow bag (elastic) in polysobutylene (PIB), or similar plastic material, which is robust, impermeable and flexible;
2) First chamber contains the medicine in powder;
3) Second chamber contains sterile water for injection;
4) Reversible partition separates the two chambers until broken by pressing on the bag manually;
5) Hollow passage connecting bag to needle. This will be equipped with another reversible partition in order to be kept separate from the main chambers until required;
6) Sterile needle 18G- 1.20x40mm pink, with plastic sheath connected to bag.

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Description

[0001] The Fast Dilution Bag is a medical device applicable in the administration of parenteral therapy.

[0002] Currently the techniques used for the parenteral administration and dilution of drugs such as, for example, antibiotics, involves the procedures outlined below:

1) Phial containing sterile solution for dilution (solvent), in glass or plastic, minimum capacity 5ml.
2) Disposable syringe, sterile, with needle, variable capacity from 10ml to 20ml.
3) Drug in powder to be diluted, contained in glass phial.

[0003] Each of the aforementioned items of medical equipment needs to be conserved in a container made of paper or non recyclable material. The procedure currently adopted by health workers for the dilution of the drug to be administered, involves the following steps:

A) Aspiration of the sterile solvent from the phial (n°1 in the list) by means of a disposable syringe (n°2), taking care not to touch the plunger in order to avoid contamination.
B) Injection of sterile solvent in the glass phial containing the drug in powder (n°3) to dilute the solution;
C) Aspiration of the dissolved drug into the intravenous drip for administration

[0004] With the FAST DILUTION BAG, on the other hand, the procedure takes place in a much simpler manner, with significant reductions both in terms of time taken for the dilution itself, and in the materials utilised (notable savings also as regards cost) and a consequent reduction of the amount of waste for disposal (material from the health service is treated in a different way from other refuse because of its nature and the cost of disposal is based on weight)

[0005] The invention is a bag of plastic or rubbery material (possibly polyisobutylene) which is flexible, impermeable and small in size (see main figure) containing two chambers within the bag itself separated by a reversible partition (see figure 4), one designed to contain the sterile liquid (see figure 2) and the other containing the powdered drug to be diluted (see figure 3)

[0006] At one end of this there is a sterile needle in a protective sheath, measuring 18G- 1.20x 40 (figure 6), and a small passage connecting the needle and the bag (figure 5), separated from the two main chambers by another reversible partition (figure 4).

[0007] The whole procedure for preparing the parenteral therapy to be administered with the FAST DILUTION BAG follows these steps:

1) Press manually on the bag so as to break the first reversible partition separating the two chambers thus enabling the sterile water to mix with the powdered drug.
2) Shake the bag to ensure the solution is fully dissolved.
3) Remove the sheath from the needle and insert it in the intravenous drip to transfer the drug to be administered.
4) Press the bag again in order to break the second thin partition and allow the solution contained therein to reach the needle and, then the drip. The latter procedure will ensure that the contents of the bag have been entirely transferred to the drip, and from there to the patient.

[0008] Important: unlike the preceding technique there is no risk of contamination of the solution since everything takes place within an hermetically sealed environment, thereby maintaining its aseptic properties.

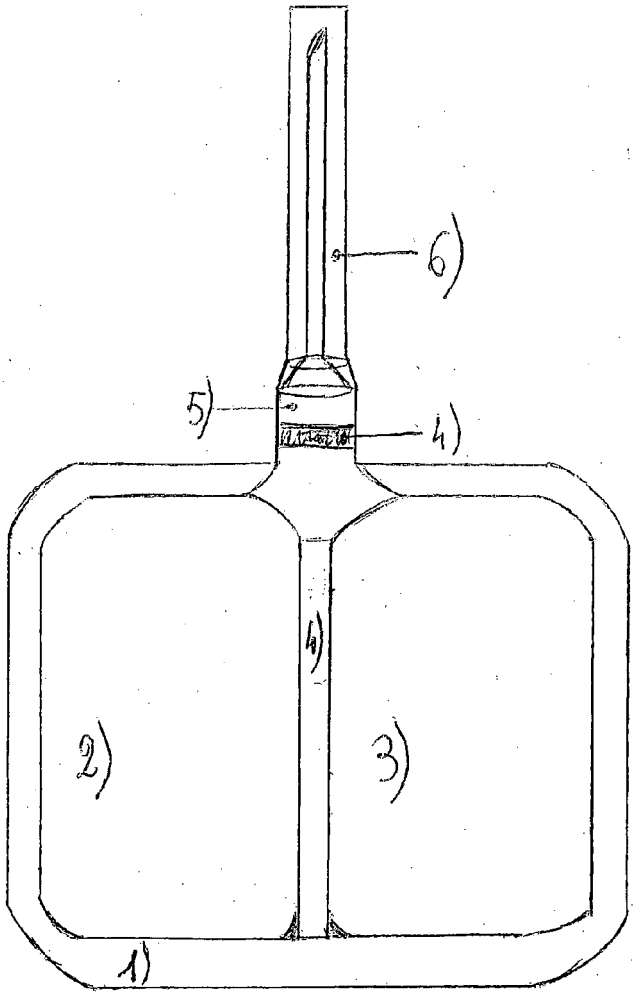
[0009] The FAST DILUTION BAG could replace the obsolete dilution techniques that involve waste of both time and materials (thereby reducing disposal costs).

[0010] Its adoption would thus represent an economic gain both for the producers of medical goods by a reduction of materials required, and for the health sector itself through a reduction in the amount of waste to be disposed of.

[0011] Yet the most important benefit would be the speeding up of parenteral therapy and the consequent time saving in the work of hospitals.

Claims

1. Soft hollow bag (elastic) in polysobutylene (PIB), or similar plastic material, which is robust, impermeable and flexible, contains two distinct chambers separated by a reversible partition the purpose of which is to keep the two substances apart until required. One chamber contains the medicine in powder and the other the sterile solution to be used for injection;
2. First chamber contains the medicine in powder;
3. Second chamber contains sterile water for injection;
4. Reversible partition separates the two chambers until broken by pressing on the bag manually;
5. Sterile needle 18G- 1.20x40mmpink, with plastic sheath connected to bag;
6. Hollow passage connecting bag to needle. This will be equipped with another reversible partition in order to be kept separate from the main chambers until required.



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EUROPEAN SEARCH REPORT

Application Number
EP 17 42 5071

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	US 4 608 043 A (LARKIN MARK E [US]) 26 August 1986 (1986-08-26) * figures 1,5,6 * * column 3, line 3 - line 34 *	1	INV. A61J1/10 A61J3/00 A61J1/20
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X	US 4 602 910 A (LARKIN MARK E [US]) 29 July 1986 (1986-07-29) * figure 7 *	1	
A	WO 2011/019347 A1 (BAXTER INT [US]; BAXTER HEALTHCARE SA [CH]; PESCI GIAMPIERO [IT]; BALT) 17 February 2011 (2011-02-17) * figure 2 *	1	TECHNICAL FIELDS SEARCHED (IPC) A61J
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The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
Munich	26 October 2017	Petersheim, Markus

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

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For more details about this annex : see Official Journal of the European Patent Office, No. 12/82