(19) Europäisches Patentamt
European Patent Office
Office européen des brevets

(11) EP 1 882 467 A1

(12) EUROPEAN PATENT APPLICATION

(43) Date of publication:
30.01.2008 Bulletin 2008/05

(51) Int Cl.:
A61J 1/00 *(2006.01)*

(21) Application number: **06015825.0**

(22) Date of filing: **28.07.2006**

(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 LV MC NL PL PT RO SE SI SK TR
Designated Extension States:
AL BA HR MK YU

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Remarks:
Amended claims in accordance with Rule 137 EPC.

(54) An improved medication dispensing device

(57) An improved medication dispensing device includes an apyrexia receptacle (1), a transport pipeline (2), a perfusion device (3), a filter (4), and a dispensing needle (5), which operates in an environment in compliance with Class 100 laminar air ventilation. The perfusion device (3) erected at the middle of the transport pipeline (2) which has two ends linking to the apyrexia receptacle (1) and the filter, respectively. In operation, the perfusion device (3) pumps the prepared medication solution from the apyrexia receptacle (1) to get through the filter (4) to remove particles and bacterium, and a thin tubular dispensing needle (5) which punctures the rubber plug (61) of an aseptic bottle (6). An axial groove (51) rendered in middle section of the dispensing needle (5) forms a pressurized seal part (62) with the rubber plug (61) resiliently wrapped around at the middle of the dispensing needle (5) to discharge redundant air pressure accumulating in the aseptic bottle (6) while keeps outside air from entering.

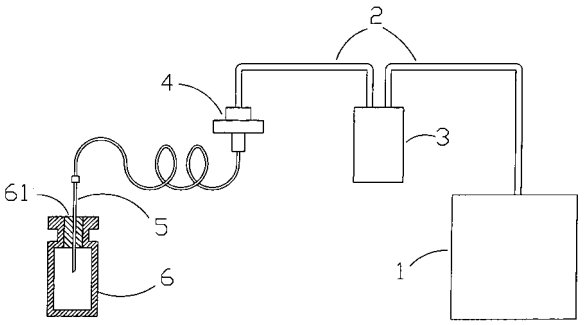

FIG.2

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Description

BACKGROUND OF INVENTION

1. Field of the invention

[0001] The present invention relates to an improved medication dispensing device, and particularly to a fill dispensing needle structure that can automatically discharge air pressure in the medication bottle to avoid the medication within from outside pollution.

2. Description of related Art

[0002] A conventional medication dispensing device is shown in FIG. 1, it uses a perfusion device to transfer the prepared medication solution stored in the apyrexia receptacle by a transport pipeline through a filter to filter out particles and bacteria. The medication solution is syringed into an aseptic bottle by a dispensing needle which punctures the rubber plug to produce injection medication in a bottle, and there is an aeration needle penetrating the rubber plug for pressure release to avoid pressure accumulated in the aseptic bottle during medication dispensing process. The other way to produce injection medication is to syringe the medication solution directly into a vacant glass bottle, seal the bottle, and followed by high pressure disinfection. However, the connecting structure using aeration needle and an aseptic bottle (or the vacant glass bottle) may cause medication solution to be infected during dispensing process if the operation could not be controlled effectively. Thus, the conventional medication dispensing device fills through aeration needle and filter is highly liable to bacteria affection from outside air.

[0003] A conventional structure is disclosed in U.S. Pat. No. 4,801,047 comprises an aeration needle and a suction needle. It is used for radionuclide generator and the disadvantage is like fore mentioned that the outer and inner space are not partitioned. Moreover, the U.S. Pat. No.5,300,042 is also an apparatus for dispensing medication, however, it is designed for elderly or patient in hospital where an aseptic environment is not required.

[0004] To overcome the shortcomings, the present invention tends to provide an improved medication dispensing device to mitigate and obviate the aforementioned problems.

SUMMARY OF THE INVENTION

[0005] The primary objective of the present invention is to provide an improved medication dispensing device.

[0006] In order to achieve the object set forth, An improved medication dispensing device includes an apyrexia receptacle, a transport pipeline, a perfusion device, a filter, and a dispensing needle, which operates in the environment in compliance with Class 100 laminar air ventilation. The perfusion device erected at the middle of the transport pipeline which has two ends link to the apyrexia receptacle and the filter, respecitvely. In operation, the perfusion device pumps the prepared medication solution from the apyrexia receptacle to get through the filter to remove particles and bacterium, and a thin tubular dispensing needle which punctures the rubber plug of an aseptic bottle. An axial groove rendered in the middle section of the dispensing needle forms a loose seal part with the rubber plug resiliently wrapped around at the middle of the dispensing needle to discharge redundant air pressure accumulating in the aseptic bottle while keeps outside air from entering.

[0007] The other object of the present invention is to reduce the severe environmental equipment request and product cost appropriately by blocking the medication bottle from pollution.

BRIEF DESCRIPTION OF THE DRAWINGS

[0008]

FIG. 1 indicates a conventional medication dispensing device;
FIG.. 2 illustrates an improved medication dispensing device in accordance with the present invention;
FIG.. 3 illustrates a dispensing needle in accordance with the present invention;
FIG.. 4 is a cross-section view of a dispensing needle in accordance with the present invention.

DETAILED DESCRIPTION AND THE PREFERRED EMBODIMENT

[0009] The detailed structure and applied theorem, function, effect can be comprehensible with reference to the following drawings.

[0010] FIG.. 1 illustrates a conventional medication dispensing device with shortcomings as known as fore mentioned.

[0011] With reference to FIG.. 2 and in comparison with FIG.. 3 and 4, the whole structure of the present invention relates to a medication dispensing device which operates in an environment in compliance with Class 100 laminar air ventilation, comrising an apyrexia receptacle 1, a transport pipeline 2, a perfusion device 3, a filter 4, and a dispensing needle 5, wherein the apyrexia receptacle 1 is connected to the perfusion device 3 with the transport pipeline 2, and the other end of the perfusion device 3 is connected to the filter 4, and the filter 4 is connected to the dispensing needle 5 puncturing the rubber plug 61 into the aseptic bottle.

[0012] The fore mentioned dispensing needle 5 is designed in a thin tubular shape with an axial groove 51 rendered at outer portion of middle section of the dispensing needle 5, which can be wrapped around resiliently and tightly by the rubber plug 61 forming a pressurization effect, and the rubber plug 61 will form a loose seal part 62 at the groove 51 portion while puncturing

into the aseptic bottle 6.

[0013] The medication solution will be pumped by the perfusion device 3, passed through the filter 4 to filter out particles and bacterium, and then led into the aseptic bottle 6 through the dispensing needle 5. After the pressure being gradually accumulated in the aseptic bottle 6, it will push the loose seal part 62 to become deformed in eversion, discharge redundant air, and release pressure to reach a pressure balance. Therefore, the aseptic bottle 6 is ensured free from pollution while the process of medication dispensing being accomplished smoothly.

[0014] It could be known through above that the improved medication dispensing device of the present invention provides an effect of discharging redundant air pressure in the aseptic bottle automatically to avoid pollution from outside.

[0015] Although the present invention has been described with reference to a preferred embodiment thereof, it is apparent to those skilled in the art that there are a variety of modifications and changes that may be made without departing from the scope of the present invention which is intended to be defined by the appended claims.

Claims

1. An improved medication dispensing device comprising:

a apyrexia receptacle provided to save prepared medication solution;
a transport pipeline connecting a apyrexia receptacle and a filter to filtrate the medication solution;
a perfusion device erected at middle section of the transport pipeline to pump the medication solution from the apyrexia receptacle to pass through the filter; wherein:

a dispensing needle with a thin tubular shape having an axial groove rendered at outer portion of the middle section of the dispensing needle, which can be wrapped around resiliently by a rubber plug forming a pressurization effect, and the rubber plug will form a loose seal part at the groove portion while the dispensing needle puncturing into the aseptic bottle.

2. An improved medication dispensing device as claimed in claim 1, wherein the apyrexia receptacle, transport pipeline, perfusion device, filter, and the dispensing needle are in compliance with Class 100 laminar air ventilation environment.

3. An improved medication dispensing device as claimed in claim 1, wherein the filter is provided with a 0.22μm film to filter out particles and bacteria.

4. An improved medication dispensing device as claimed in claim 1, wherein the pipeline is made of material proof of acid and alkali.

5. An improved medication dispensing device as claimed in claim 2, wherein the pipeline is made of material proof of acid and alkali.

Amended claims in accordance with Rule 137(2) EPC.

1. A medication dispensing device comprising: a dispensing needle (5) with a thin tubular shape of tapered cross section, an axial U-shaped groove (51) with sharpen edges rendered at outer portion of the middle section of the dispensing needle, which can be wrapped around tightly by the rubber plug (61) forming a pressurization effect, and a tab forming a loose seal part tab (62) while the dispensing needle (5) puncturing into aseptic bottle.

2. A medication dispensing device as claimed in claim 1, wherein the tab (62) was formed by the U-shaped groove (51) with its sharpen edges while puncturing into aseptic bottle.

3. A medication dispensing device as claimed in claim 1, wherein the loose seal part tab (62) will turn inside outward when there is a pressure buildup in the aseptic bottle during dispensing operation, forming a one-way release of pressure, meanwhile, preventing pollutant air from entering into the aseptic bottle.

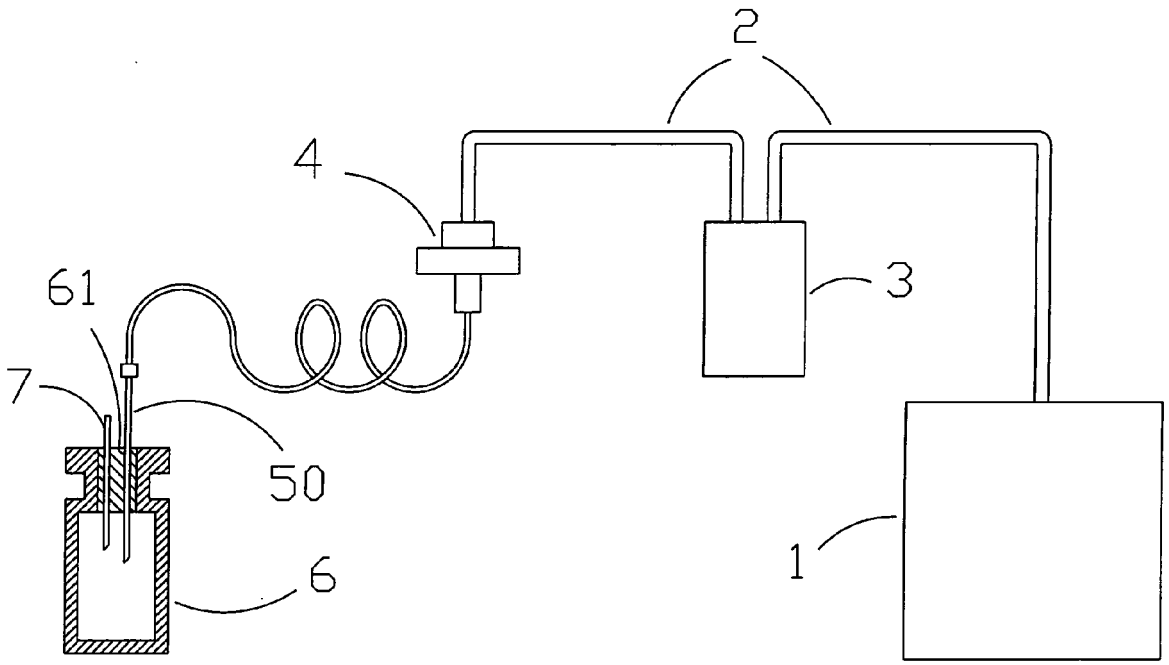

FIG.1

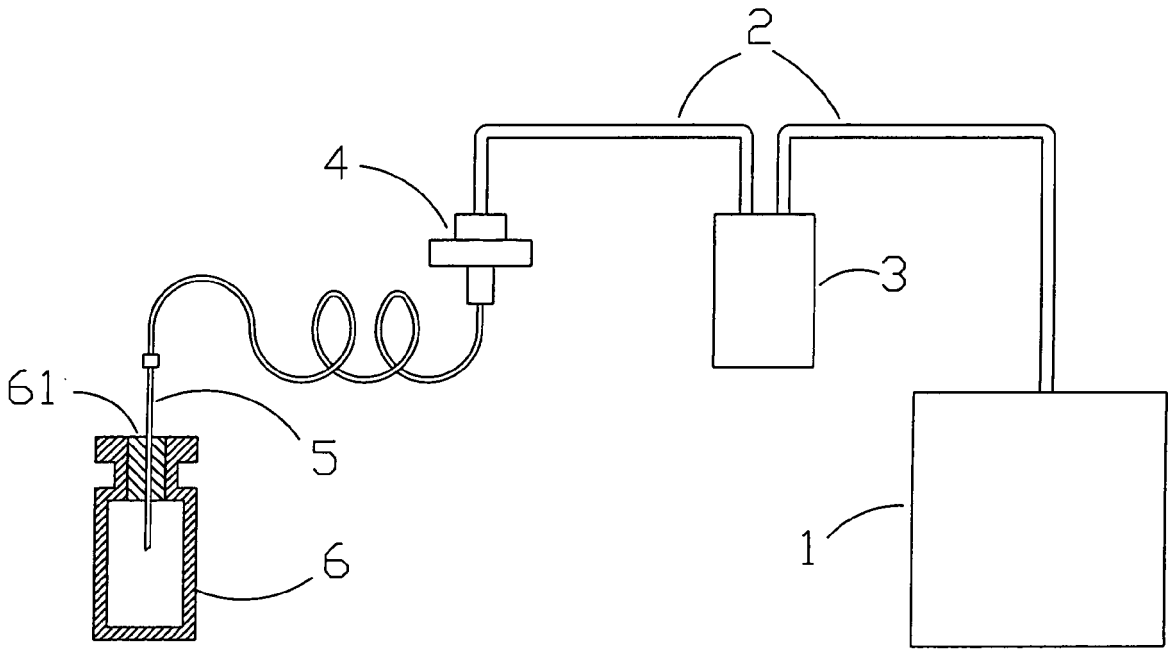

FIG.2

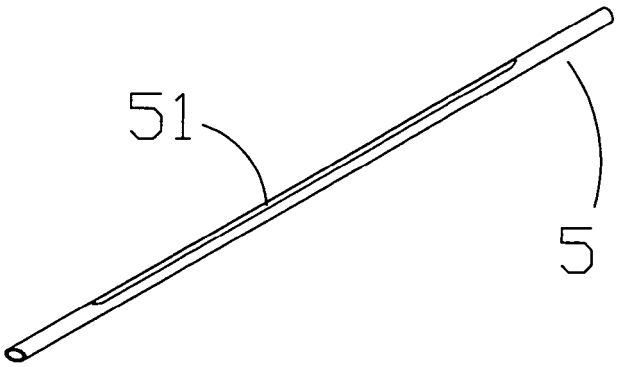

FIG.3

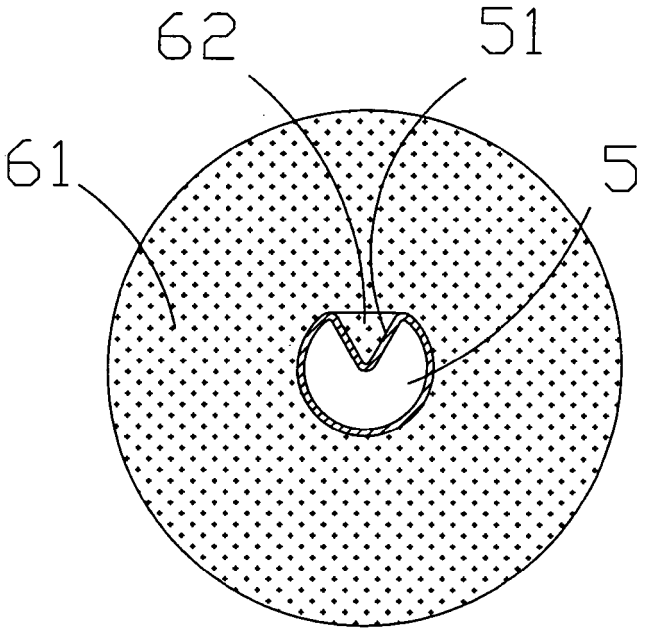

FIG.4

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EUROPEAN SEARCH REPORT

Application Number
EP 06 01 5825

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
Y	EP 0 143 064 A1 (HOSPAL IND [FR]) 29 May 1985 (1985-05-29) * page 1, lines 26-28; figure 1 * * page 4, lines 16-21 * * page 5, lines 22-25 *	1-5	INV. A61J1/00
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A	EP 1 420 255 A2 (SYSMEX CORP [JP]) 19 May 2004 (2004-05-19) * paragraphs [0118] - [0121]; figures 34-37 *	1-5	
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			A61J

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
The Hague	9 January 2007	Bielsa, David

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
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ANNEX TO THE EUROPEAN SEARCH REPORT ON EUROPEAN PATENT APPLICATION NO. EP 06 01 5825

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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09-01-2007

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

REFERENCES CITED IN THE DESCRIPTION

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- US 5300042 A **[0003]**