"DRIP CHAMBER WITH INTEGRATED FLOW REGULATOR FOR MEDICAL LINES"

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Field of the invention

The present invention relates to drip chambers formed by a generally cylindrical body having an inlet and an outlet, traditionally used in medical lines, for example for infusion or transfusion, to supply, in a dosed way, a medical liquid, normally contained in a sac or bottle, to a patient.

In use, set between the sac or bottle of the medical liquid and the drip chamber is a flow regulator, typically constituted by an elastic clamp for gripping with adjustable intensity a flexible pipe that connects the sac to the drip chamber. As an alternative to the elastic clamp, for dosage of the liquid a precision regulator of a rotary type can be used, which is also in any case distinct and separate from the drip chamber. US 4,343,305 describes a drip chamber according to the preamble of claim 1.

Summary of the invention

The purpose of the present invention is to provide a drip chamber of the aforesaid type, configured in such a way as to reduce the number of loose components of the medical line, ensuring at the same time a greater convenience and practicality of regulation during use.

According to the invention, the above purpose is achieved thanks to the features according to claim 1.

Brief description of the drawings

The invention will now be described in detail with reference to the annexed plate of drawings, which are provided purely by way of non-limiting example and in which:

- Figure 1 is a schematic perspective view of a drip chamber with integrated flow regulator according to the invention;

- Figure 2 is an axial cross-sectional view of Figure 1; and

- Figure 3 shows a variant of Figure 1.

Detailed description of the invention

With reference to Figures 1 and 2, a drip chamber according to the invention basically comprises a generally cylindrical body 1 made of transparent plastic material having one open end, which defines an inlet 2, and a restricted opposite end, which defines an outlet 3. According to the invention, directly applied on the inlet 2 is a precision flow regulator, designated as a whole by 4.

The flow regulator 4 comprises, in a generally known way, a first body 5 and a second body 6 both made of moulded plastic material and coupled together in a rotary way via a central pin 7, with the interposition of a gasket 8.

The first body 5 is formed integrally with an axial inlet fitting 9, the outer part of which is shaped like a perforating tip 10, applied on which is a removable protection cap 11. The inlet fitting 9 is moreover formed integrally with a side aeration passage 12 with

associated filter 13 and openable closing plug 14.

The second body 6 is formed integrally with an outlet fitting 15, communication of which with the inlet fitting 9 is finely and progressively adjustable by means of relative rotation between the bodies 5 and 6, through dosage passages of said body 5, one of which is designated as a whole by 16 in Figure 2. The modalities via which said progressive regulation is obtained are generally known, and for reasons of brevity will not be described in detail.

For controlling regulation, at least one graduated scale 17 (or a different indication representing a greater or smaller flow rate) is provided, formed peripherally on the body 6 and co-operating with a window indicator 18, formed integrally with the body 5. The graduated scale 17 can be conveniently made according to what is described and illustrated in the Italian patent application No. TO2005A00394, not published at the date of filing of the present application.

The body 6 is moreover formed integrally with an annular skirt 19, projecting from the part opposite to the body 5 and fixed permanently on the outside of the inlet 2 of the drip chamber 1, via gluing or with any suitable equivalent system. The outlet fitting 15, contained within the skirt 19, projects in this way within the body 1 of the drip chamber.

The variant of Figure 3, in which parts that are identical or similar to the ones already described with reference to Figures 1 and 2 are designated by the same reference numbers, differs from the preceding embodiment only as regards the absence of the side aeration passage and corresponding plug. This variant is usable in the case where the drip chamber is to be used for a sac for medical liquid, whilst the previous

embodiment is designed for use with medical liquids contained in bottles.

Integration between the body 1 of the drip chamber and the precision regulator 4 advantageously enables, on the one hand, reduction and compacting of the number of the components necessary for the medical line to which the drip chamber is associated, and on the other renders appreciably more convenient and easy the operations of regulation of the flow through said line by the personnel responsible.

Of course the details of construction and the embodiments may vary widely with respect to what is described and illustrated herein, without thereby departing from the scope of the invention, as defined in the ensuing claims.

CLAIMS

1. A drip chamber for medical lines, including a generally cylindrical body (1) having an inlet (2) and an outlet (3) and integrated with a precision flow regulator (4) comprising a first body (5) having an inlet fitting (9), and a second body (6) having an outlet fitting (15), coupled together in a rotary way with the interposition of a gasket (8), to open progressively the communication between said inlet fitting (9) and said outlet fitting (15) through dosage passages (16), wherein said second body (6) has an annular attachment skirt (19) permanently fixed on said inlet end (2) of the body (1) of the drip chamber, said drip chamber being characterized in that said second body (6) bears a peripheral graduated scale (17) co-operating with an indicator (18) of said first body (5), said indicator (18) consisting of an integral side appendage of said first body (5) shaped as a window projecting from a side wall of said first body (5) and over said side graduated scale (17), so as to frame at least one value of said peripheral graduated scale (17) while leaving other values thereof visible.

2. The drip chamber according to Claim 1, characterized in that said inlet fitting (9) of the first body (5) of the flow regulator (4) is formed like a perforating tip (10).

3. The drip chamber according to Claim 2, characterized in that said inlet fitting (9) of the first body (5) of the flow regulator (4) is moreover provided with an aeration passage (12) with associated filter (13) and openable closing plug (14).