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Title of the Device: PRESSURE DETECTOR FOR
BODY-LIQUID PROCESSING CIRCUIT

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Scope of Claim for Utility Model Registration

A pressure detector for a body-liquid processing circuit, the pressure detector being installed in a body-liquid processing circuit and adapted to detect a pressure of a body liquid circulating through the circuit, the pressure detector comprising: a body-liquid circulation pipe 16 adapted to expand and contract by the pressure of the body liquid, the body-liquid circulation pipe being configured such that a body-liquid inflow pipe 13 is liquid-tightly attached to one of both ends of a pouched body formed by two flexible sheets 11 and 15 while a body-liquid outflow pipe 14 is liquid-tightly attached to the other thereof, and that a filter 12 for body-liquid filtration is disposed to separate an inside of the pouched body into a body-liquid inflow side and a body-liquid outflow side; an outer pipe 17 formed of non-flexible material and adapted to liquid-tightly accommodate therein the body-liquid circulation pipe 16, thereby forming a sealed chamber with a fluid charged thereinto between the non-flexible outer pipe and the flexible body-liquid circulation pipe; and a pressure gauge 20 attached to an end of a conduit 19 connected to the sealed chamber, wherein the pressure detector is configured to detect a pressure of the fluid charged into the sealed chamber, as the pressure of the body liquid flowing through the body-liquid circulation pipe.

Detailed Description of the Device

[0001] The present utility model relates to a pressure detector for a body-liquid processing circuit.

[0002] Conventionally, for example, in hemodialysis or ascites filtration condensation, extracorporeal-circulation and extracorporeal-processing are performed in which a body liquid of a patient is taken out of the body to be processed there and then returned again to the body. An extracorporeal circulation flow path is provided with not only a tube serving as a circuit for the body liquid, but also a pressure detector, a pressure adjuster, a bubble removal device, a filtering device, a sampling device, a chemical addition device, and the like, as appropriate. Among these devices, the pressure detector uses air in an air reservoir provided in a drip chamber for removing bubbles to operate a pressure gauge. Such a conventional pressure detector is illustrated in Fig. 1.

[0003] Referring to Fig. 1, a tube 1 is coupled to an outer pipe 2 and has an air reservoir 3 formed at its upper part. A body liquid is retained downward of the tube body as indicated by reference character 4. This mechanism is normally called a drip chamber or an air trap (hereinafter referred to as a drip chamber). While the body liquid is retained in the outer pipe 2, the bubbles rise toward the upper part of the pipe to be separated from the body liquid, so that the body liquid without any bubbles can be obtained. The outer pipe 2 is provided with a conduit 6 for connection between the air reservoir 3 and a

pressure gauge 5. The pressure of air retained in the air reservoir 3 is detected by the pressure gauge 5, thereby allowing an operator to know the pressure of the body liquid. The air reservoir 3 is further provided with a conduit 7 for adjustment of liquid level. The liquid-level adjustment conduit 7 is adapted such that, when the amount of air retained in the air reservoir is excessively large, forceps or a clamp 8 can be opened to permit the air to be drawn out through a syringe or the like. In contrast, the liquid-level adjustment conduit 7 is adapted such that, when the amount of the air retained in the air reservoir is so small that the body liquid flows backward through the conduits 6 and 7, the forceps or the clamp 8 can be opened, and air can be charged from the outside of the system using a syringe or the like to maintain the amount or pressure of air at an appropriate level. As mentioned above, the conventional pressure detector is designed to use a drip chamber mechanism for removal of bubbles in the body liquid. Further, a pouched mesh body 9 is provided at the lower side of the outer pipe 2. The pouched mesh body 9 serves to filter coagulated matter, etc., generated in the above-mentioned drip chamber, a dialyzer, and the like, thereby preventing the coagulated matter from being refluxed into the body. The body liquid is allowed to pass from the inside to the outside of the pouched mesh body. The body liquid penetrating through a body-liquid filtering part formed of the mesh body is derived from another tube body 10. In the body-liquid processing circuit

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