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Disclosure of Invention

Problem to be Solved by the Invention

[0008] The second end portion 1214 of the luer connector 1200 of Patent Document 1 includes a first member 1232 including the female connecting portion provided with the male thread 1236 and an annular second member 1234 into which the first member 1232 is inserted. The first member 1232 has a protrusion (tab) 1298 that is engageable with the second member 1234. After the injector 1312 has been connected to the second end portion 1214, rotating the injector 1312 further in the tightening direction shears off the protrusion 1298 and separates the protrusion 1298 from the first member 1232. The first member 1232 is then rotatable in the forward and reverse directions relative to the second member 1234 (and hence the first end portion 1212).

[0009] The luer connector 1200 of Patent Document 1 is constituted by a large number of components and has a complex structure, and the assembly thereof is troublesome. Also, the protrusion 1298 separated from the first member 1232 remains in a gap between the first member 1232 and the second member 1234 and can freely move within the gap. Therefore, the protrusion 1298 may obstruct rotation of the first member 1232 relative to the second member 1234.

[0010] Embodiments of the present invention provide a medical connector in which, after a rotational force of a predetermined value or greater is applied to a first end of the medical connector, the first end can freely rotate (i.e., idly rotate) relative to a second end of the medical connector. Embodiments of the present invention provide a medical connector that enables idle rotation without generating a broken piece of a member thereof. Embodiments of the present invention provide a medical connector that is constituted by a small number of components, has a simple structure, and is easy to assemble.

Means for Solving Problem

[0011] According to an aspect of the present invention, there is provided a medical connector including a first member and a second member. A male connecting portion is

provided at one of a first end of the first member and a first end of the second member. A female connecting portion is provided at the other of the first end of the first member and the first end of the second member. A screwing structure is provided at a second end of the first member. The male connecting portion is inserted into the female connecting portion, and the first member and the second member are in communication with each other. The medical connector includes a dislodgement prevention mechanism that prevents the male connecting portion from dislodging from the female connecting portion, a sealing mechanism that connects the male connecting portion and the female connecting portion to each other in a liquid-tight manner, and a rotation prevention mechanism that prevents the first member from rotating relative to the second member. The rotation prevention mechanism includes a first engagement structure provided on the first member, and a second engagement structure provided on the second member so as to be able to abut against the first engagement structure in a circumferential direction. A direction in which another screwing structure that can be screwed to the screwing structure is rotated in order to screw the other screwing structure to the screwing structure is defined as a tightening direction. The rotation prevention mechanism is configured such that, when a rotational force of a predetermined value or greater is applied to the first member in the tightening direction, one of the first engagement structure and the second engagement structure is plastically deformed by the other, so that the first member can rotate in both forward and reverse directions relative to the second member.

Effects of the Invention

[0012] According to embodiments of the present invention, when a rotational force of a predetermined value or greater acting in the tightening direction is applied to the screwing structure provided at the second end of the first member, one of the first engagement structure and the second engagement structure is plastically deformed. Thus, after that, the first member can rotate (idly rotate) in both the forward and the reverse directions relative to the second member.

[0013] One of the first engagement structure and the second engagement structure is plastically deformed. During the plastic deformation, no broken piece occurs. The first

member is enabled to idly rotate relative to the second member without generating a broken piece.

[0014] The medical connector as per embodiments of the present invention can consist of two components: the first member and the second member. Therefore, the medical connector is constituted by a small number of components, has a simple structure, and is easy to assemble.

Brief Description of Drawings

[0015] [FIG. 1] FIG. 1 is a perspective view of a medical connector according to Embodiment 1 of the present invention.

[FIG. 2] FIG. 2 is a perspective cross-sectional view of the medical connector according to Embodiment 1 of the present invention.

[FIG. 3] FIG. 3 is an exploded perspective view of the medical connector according to Embodiment 1 of the present invention.

[FIG. 4] FIG. 4 is an exploded perspective cross-sectional view of the medical connector according to Embodiment 1 of the present invention.

[FIG. 5] FIG. 5 is a cross-sectional perspective view of a second member constituting the medical connector according to Embodiment 1 of the present invention, when viewed from a female connecting portion side.

[FIG. 6] FIG. 6 is a cross-sectional view of the medical connector according to Embodiment 1 of the present invention, taken along a plane containing an axis thereof.

[FIG. 7] FIG. 7 is a cross-sectional view of the medical connector according to Embodiment 1 of the present invention, taken along a plane containing line 7-7 in FIG. 2.

[FIG. 8] FIG. 8 is an exploded perspective view illustrating an example method of using the medical connector according to Embodiment 1 of the present invention.

[FIG. 9] FIG. 9 is a cross-sectional view illustrating the example method of using the medical connector according to Embodiment 1 of the present invention.

[FIG. 10] FIG. 10 is a perspective view of a first member constituting a medical connector according to Embodiment 2 of the present invention.

[FIG. 11] FIG. 11 is a cross-sectional view of the medical connector