Claims

[Claim 1]

A surgical tool insertion aid having a tubular shape which aids insertion of a surgical tool into a body, comprising:

a plurality of inner tubes into which the surgical tool is insertable and which are insertable into the surgical tool insertion aid, and which include at least one inner tube and another inner tube having a smaller diameter than the at least one inner tube; and

a plurality of guide members, consisting of dovetail grooves formed in an inner wall surface of the surgical tool insertion aid;

which are extended in an axial direction from a distal end side to a proximal end side in an inner peripheral surface of the surgical tool insertion aid, and in which cross-sections perpendicular to an axial direction are of identical shapes; wherein

each of the plurality of inner tubes comprises, an

engaging member, locally projected from the outer peripheral surface of the inner tube in the circumferential direction so as to be able to engage with the plurality of guide members, respectively, to be made slidable; wherein

at least a part of the engaging member is provided at least at the distal end of the outer peripheral surface .

[Claim 2]

The surgical tool insertion aid according to claim 1, wherein:

the engaging member is provided from a distal end to a proximal end of the outer peripheral surface of the inner tube.

[Claim 3]

The surgical tool insertion aid according to claim 1, wherein:

the engaging members are provided at part of an area from the distal end to the proximal end of the outer peripheral surface of the inner tube, with at least one engaging

member being provided at the distal end.

[Claim 4]
The surgical tool insertion aid according to claim 1, wherein:

the outer peripheral surface of the inner tube is subjected to a hydrophilic treatment.

[Claim 5]
The surgical tool insertion aid according to claim 1, wherein:

the inner tube comprises a first inner tube having a first inner diameter, and a second inner tube having a second inner diameter.

[Claim 6]
The surgical tool insertion aid according to claim 1, comprising:

a first wire member which is embedded within a peripheral wall of the surgical tool insertion aid in an axial direction from the distal end side to the proximal end side thereof, and whose proximal end portion can be grasped and operated so as to cause the surgical tool insertion aid to bend in an arbitrary direction.

[Claim 7]
The surgical tool insertion aid according to claim 6, comprising:

a first wire fixing device which temporarily fixes an operation of the first wire member.

[Claim 8]
The surgical tool insertion aid according to claim 1, comprising:

a second wire member that is fixed in the inner tube and whose proximal end portion can be grasped and operated so as to cause the inner tube to bend in an arbitrary direction.

[Claim 9]
The surgical tool insertion aid according to claim 8, comprising:

a second wire fixing device which temporarily fixes an operation of the second wire

member.

[Claim 10]
The surgical tool insertion aid according to claim 8, wherein:

the inner tube comprises, on a distal end side, a bending portion that can be bent by an operation of the second wire member.

[Claim 11]
The surgical tool insertion aid according to claim 10, wherein:

in the inner tube, bending directions of the bending portion are limited.

[Claim 12]
The surgical tool insertion aid according to claim 1, comprising:

a first degassing prevention cap which is mounted at a proximal end portion of the surgical tool insertion aid and which is capable of introducing the inner tube.

[Claim 13]
The surgical tool insertion aid according to claim 12, wherein:

the first degassing prevention cap comprises a flexible sheet member which blocks the proximal end portion of the surgical tool insertion aid, and

the sheet member comprises a slit portion which penetrates in a thickness direction and which is provided for introducing the inner tube.

[Claim 14]
The surgical tool insertion aid according to claim 12 or claim 13, wherein:

the engaging member is provided from a distal end to a proximal end of the outer peripheral surface of the inner tube; and

the inner tube comprises, within a first predetermined distance from the proximal end thereof, a level-difference eliminating portion which fills a level difference between the outer peripheral surface of the inner tube and an outer peripheral surface of the engaging member.

[Claim 15]
The surgical tool insertion aid according to claim 1, comprising:

a second degassing prevention cap which is mounted at a proximal end portion of the inner tube and which is capable of introducing the surgical tool.

[Claim 16]
The surgical tool insertion aid according to claim 15, wherein:

the second degassing prevention cap is an opening and closing valve which is capable of introducing the surgical tool.

[Claim 17]
The surgical tool insertion aid according to claim 1, comprising:

on an outer peripheral side of the surgical tool insertion aid, an outer tube which is mounted in an advanceable and retractable manner with respect to the surgical tool insertion aid, or is rotatably mounted with respect to the surgical tool insertion aid as an axis.

[Claim 18]
The surgical tool insertion aid according to claim 17, comprising:

two balloon members which are provided on the outer peripheral surface of the outer tube and which are contractible and expandable so as to protrude in an outer periphery direction;

wherein a predetermined gap is provided between the two balloon members.