CLAIMS

~~[1]~~1. A medical port that is to be secured to a container main body portion of a nutrient container so as to allow communications between the inside and the outside of the container main body portion,

the medical port comprising:

a port main body portion comprising a top plate portion that faces the inside of the container main body portion in a state where the medical port is secured to the container main body portion; a side wall portion that is arranged on one main surface of the top plate portion and is to be secured to the container main body portion; and an attachment portion that comprises a tubular portion protruding on the top plate portion on a side opposite to the side wall portion and having a through hole being in communication with a space surrounded by the side wall portion;

a thin film that is mounted to the port main body portion and arranged on an extension of the through hole inside the container main body portion in a state where the medical port is secured to the container main body portion so as to block a flow of a liquid material within the container main body portion out of the nutrient container;

a flow path opening member that is attached to the attachment portion; and

a connection maintaining portion that is provided to either the port main body portion or the flow path opening member and that allows to maintain the connection to a connector,

wherein the flow path opening member comprises: a communication portion comprising a piercing portion that can pierce the thin film and a flow path through which the liquid material filled in the container main body portion can flow out of the nutrient container; and a cylindrical portion that is arranged integrally with and around the communication portion, and

the flow path opening member can assume a first attachment state and a second attachment state with respect to the attachment portion as follows:

in the first attachment state, the flow path opening member is attached to the attachment portion such that an end of the piercing portion is held at a position not in contact with the thin film or in contact with the thin film without pressing the thin film, while

in the second attachment state, the flow path opening member is attached to the attachment portion such that the thin film is broken by the piercing portion and an inner peripheral surface of the cylindrical portion is held in contact with an outer peripheral surface of the tubular portion,

assuming that the tubular portion is a first tubular portion and that the cylindrical portion is a first cylindrical portion, the attachment portion further comprises a second tubular portion that is arranged to surround the first tubular portion, protrudes on the top plate portion on a side opposite to the side wall portion, and is provided with a linear rib formed on an outer peripheral surface of the second tubular portion,

the flow path opening member further comprises a second cylindrical portion that is arranged to surround the first cylindrical portion, is arranged outside the second tubular portion, protrudes toward the port main body portion from an upper surface portion of the flow path opening member, and is provided with a linear groove formed on an inner peripheral surface of the second cylindrical portion,

a longitudinal direction of the linear rib formed in the second tubular portion coincides with an axis direction of the second tubular portion, and

the linear rib formed in the second tubular portion is inserted slidably in the linear groove formed in the second cylindrical portion, or,

the attachment portion further comprises a second tubular portion that is arranged to surround the first tubular portion, protrudes on the top plate portion on a side opposite to the side wall portion, and is provided with a linear groove formed on an outer peripheral surface of the second tubular portion,

the flow path opening member further comprises a second cylindrical portion that is arranged to surround the first cylindrical portion, is arranged outside the second tubular portion, protrudes toward the port main body portion from an upper surface portion of the flow path opening member, and is provided with a linear rib formed on an inner peripheral surface of the second cylindrical portion,

a longitudinal direction of the linear groove formed in the second tubular portion coincides with an axis direction of the second tubular portion, and

the linear rib formed in the second cylindrical portion is inserted slidably in the linear groove formed the second tubular portion.

~~[2]~~2. The medical port according to claim 1,

wherein the communication portion further comprises a rib,

the tubular portion further comprises an annular groove that is formed on an inner peripheral surface of the tubular portion and into which the rib can be fitted, and

the first attachment state is maintained by the rib and the annular groove fitted together.

~~[3]~~3. The medical port according to claim 2,

wherein assuming that the rib is a first rib, the communication portion further comprises a second rib arranged farther from the piercing portion than the first rib, and

the second attachment state is maintained by the second rib and the annular groove fitted together.

~~[4] The medical port according to any one of claims 1 to 3,~~

~~wherein assuming that the tubular portion is a first tubular portion, the attachment portion further comprises a second tubular portion that is arranged to surround the first tubular portion, protrudes on the top plate portion on a side opposite to the side wall portion, and is provided with a linear rib formed on an outer peripheral surface of the second tubular portion,~~

~~assuming that the cylindrical portion is a first cylindrical portion, the flow path opening member further comprises a second cylindrical portion that is arranged to surround the first cylindrical portion, is arranged outside the second tubular portion, protrudes toward the port main body portion from an upper surface portion of the flow path opening member, and is provided with a linear groove formed on an inner peripheral surface of the second cylindrical portion,~~

~~a longitudinal direction of the linear rib coincides with an axis direction of the second tubular portion, and~~

~~the linear rib is inserted slidably in the linear groove.~~

~~[5] The medical port according to any one of claims 1 to 3,~~

~~wherein assuming that the tubular portion is a first tubular portion, the attachment portion further comprises a second tubular portion that is arranged to surround the first tubular portion, protrudes on the top plate portion on a side opposite to the side wall portion, and is provided with a linear groove formed on an outer peripheral surface of the second tubular portion,~~

~~assuming that the cylindrical portion is a first cylindrical portion, the flow path opening member further comprises a second cylindrical portion that is arranged to surround the first cylindrical portion, is arranged outside the second tubular portion, protrudes toward the port main body portion from an upper surface portion of the flow path opening member, and is provided with a linear rib formed on an inner peripheral surface of the second cylindrical portion,~~

~~a longitudinal direction of the linear groove coincides with an axis direction of the second tubular portion, and~~

~~the linear rib is inserted slidably in the linear groove.~~

~~[6] The medical port according to claim 1,~~

~~wherein assuming that the tubular portion is a first tubular portion, the attachment portion further comprises a second tubular portion that is arranged to surround the first tubular portion, protrudes on the top plate portion on a side opposite to the side wall portion, and is provided with a first hook portion formed at an end of the second tubular portion,~~

~~assuming that the cylindrical portion is a first cylindrical portion, the flow path opening member further comprises a second cylindrical portion that is arranged to surround the first cylindrical portion, is arranged outside the second tubular portion, protrudes toward the port main body portion from an upper surface portion of the flow path opening member, and is provided with a second hook portion formed at an end of the second cylindrical portion,~~

~~the communication portion further comprises a male thread formed on an outer peripheral surface of the communication portion,~~

~~the first tubular portion further comprises a female thread that is formed on an inner peripheral surface of the first tubular portion and can be screwed with the~~

~~male thread, and~~

~~in the first attachment state, a surface of the male thread facing the female thread at an end on a screw-starting side is in contact with a surface of the female thread facing the male thread, and the second hook portion is arranged closer to the top plate portion than the first hook portion.~~

~~[7] The medical port according to claim 1,~~

~~wherein the communication portion further comprises a male thread formed on an outer peripheral surface of the communication portion,~~

~~the tubular portion further comprises a female thread that is formed on an inner peripheral surface of the tubular portion and can be screwed with the male thread, and~~

~~in the first attachment state, a screw-starting side of the male thread and a screw-starting side of the female thread are screwed together so that the flow path opening member cannot be removed from the tubular portion unless the flow path opening member is rotated around a central axis of the flow path opening member in a direction opposite to a direction in which the male thread and the female thread are screwed together.~~

~~[8]~~4. The medical port according to any one of claims 1 to ~~7~~3, wherein the communication portion comprises a plurality of flow paths and is provided with holes, each constituting a part of each of the flow paths, on an end surface on a side opposite to the thin film.

~~[9]~~5. The medical port according to any one of claims 1 to ~~8~~4, wherein the communication portion comprises a plurality of flow paths, comprises a protruding portion arranged at an end on the side opposite to the thin film, is provided with holes each constituting a part of each of the flow paths, in the protruding portion, and includes a partition wall that is arranged on a side of the thin film relative to the protruding portion so as to divide a space in a direction of extension of the holes.

~~[10]~~6. The medical port according to any one of claims 1 to ~~9~~5, further comprising a protection cover that covers the flow path opening member in the first attachment state and comprises an engagement portion capable of being engaged with the connection maintaining portion.

~~[11]~~7. A nutrient container comprising:

a container main body portion including a flexible bag-like member; and

the medical port according to any one of claims 1 to ~~10~~6, which is secured to the container main body portion.

~~[12]~~8. A nutrient supply set comprising:

the nutrient container according to claim ~~11~~7; and

a liquid-delivery circuit that comprises: a connector comprising an engagement portion capable of being engaged with the connection maintaining portion of the medical port; and a liquid-delivery tube connected to the connector.