CLAIMS

[Claim 1]

A connection device, comprising:

a first member in a tube shape having a first internal space which extends in a longitudinal direction and opens to both end sides;

a hollow needle having a hub connectable to a port of a syringe provided on a base end side of the first member and extending from the hub to a tip side in the first internal space of the first member; and

a second member which has a second internal space which extends in the longitudinal direction and opens to both end sides, which is provided on a tip side of the first member by continuously connecting the second internal space to the first internal space, and which can move relative to the first member in the longitudinal direction, wherein

the second member can move to a first position where a tip of the hollow needle is accommodated in the second internal space and a second position where the tip of the hollow needle is exposed from the second internal space and is elastically energized to the first position side relative to the first member~~.~~

~~[Claim 2]~~

~~The connection device according to Claim 1, wherein~~

~~the first member is provided with lock mechanisms which fix the second member in such a manner that the second member does not move from the first position.~~

~~[Claim 3]~~

~~The connection device according to Claim 1, wherein~~

tapered inclines which outwardly spread toward a base end side are provided on an outer wall on a tip side of the first member,

the second member is provided with projection pieces which are extended in the longitudinal direction toward the inclines and can be elastically deformed in such a manner as to outwardly spread by abutting of a tip side on the inclines, and

the second member is elastically energized to the first position side by restoring force of the elastically deformed projection pieces.

[Claim 2]

The connection device according to Claim 1, wherein the first member is provided with lock mechanisms which fix the second member in such a manner that the second member does not move from the first position.

[Claim 3~~4~~]

The connection device according to Claim 1~~3~~, wherein

engagement portions with which a tip side of the

projection pieces can engage are provided on a tip side of the inclines of the first member, and the second member is fixed to the first position by engagement of the projection pieces with the engagement portions.

[Claim 4~~5~~]

~~The connection device according to Claim 1, wherein~~

A connection device, comprising:

a first member in a tube shape having a first internal space which extends in a longitudinal direction and opens to both end sides;

a hollow needle having a hub connectable to a port of a syringe provided on a base end side of the first member and extending from the hub to a tip side in the first internal space of the first member; and

a second member which has a second internal space which extends in the longitudinal direction and opens to both end sides, which is provided on a tip side of the first member by continuously connecting the second internal space to the first internal space, and which can move relative to the first member in the longitudinal direction, wherein

the second member can move to a first position where a tip of the hollow needle is accommodated in the second internal space and a second position where the tip of the hollow needle is exposed from the second internal space and is elastically energized to the first position side

relative to the first member,

long holes which extend in the longitudinal direction are formed in an outer wall on the tip side of the first member,

the second member is provided in such a manner that a tip side can move into/out of the first internal space of the first member, in which elastic pieces extended from a base end side are extended to an outside of the first member through the long holes, and are elastically deformed to be connected to the side of the first member,

the second member is elastically energized to the first position side by restoring force of the elastically deformed elastic pieces.

[Claim 5~~6~~]

The connection device according to Claim 4~~5~~, wherein engagement portions with which the elastic pieces can engage are provided in the long holes of the first member and the second member is fixed to the first position by engagement of the elastic pieces with the engagement portions.

[Claim 6~~7~~]

~~The connection device according to Claim 1, wherein~~

A connection device, comprising:

a first member in a tube shape having a first internal space which extends in a longitudinal direction and opens

to both end sides;

a hollow needle having a hub connectable to a port of a syringe provided on a base end side of the first member and extending from the hub to a tip side in the first internal space of the first member; and

a second member which has a second internal space which extends in the longitudinal direction and opens to both end sides, which is provided on a tip side of the first member by continuously connecting the second internal space to the first internal space, and which can move relative to the first member in the longitudinal direction, wherein

the second member can move to a first position where a tip of the hollow needle is accommodated in the second internal space and a second position where the tip of the hollow needle is exposed from the second internal space and is elastically energized to the first position side relative to the first member,

tapered inclines which outwardly spread toward a tip side are provided on an outer wall on a base end side of the second member,

the first member is provided with projection pieces which are extended toward the inclines in the longitudinal direction and can be elastically deformed in such a manner as to outwardly spread by abutting of the tip side on the inclines, and

the second member is elastically energized to the

first position side by restoring force of the elastically deformed projection pieces.

[Claim 7~~8~~]

The connection device according to Claim 6~~7~~, wherein

engagement concave portions are provided in an outer wall of the first member, and

the second member is provided with engagement convex portions which can engage with the engagement concave portions, energizing portions which elastically energize the engagement convex portions to a side where the engagement convex portions do not engage with the engagement concave portions, and lock portions which fix the engagement convex portions to a position where the engagement convex portions engage with the engagement concave portions against energization force caused by the energizing portions,

wherein the second member is fixed to the first position by engagement of the engagement concave portions with the engagement convex portions.

[Claim 8~~9~~]

The connection device according to Claim 7~~8~~, wherein

the second member is provided with holding portions which support the engagement convex portions facing the engagement concave portions,

a pair of the energizing portions are provided on both

sides of the holding portions and elastically support the holding portions by the pair of energizing portions, and

the lock portions are projected toward both the pair of energizing portions from the engagement convex portions and engage with both the pair of energizing portions to thereby fix the engagement convex portions to the position where the engagement convex portions engage with the engagement concave portions.

[Claim 9~~10~~]

The connection device according to Claim 7~~8~~, wherein

the second member is provided with holding portions which support the engagement convex portions facing the engagement concave portions,

a pair of the energizing portions are provided on both sides of the holding portions and elastically support the holding portions by one of the pair of energizing portions, and

the lock portions are projected toward the other one of the pair of energizing portions from the engagement convex portions and engage with the other one of the energizing portions to thereby fix the engagement convex portions to the position where the engagement convex portions engage with the engagement concave portions.

[Claim 10~~11~~]

A blood component separation apparatus, comprising:

the connection device according to any one of Claims 1 to 9~~10~~;

a first syringe having a first syringe barrel into which a tip side of the connection device is inserted, a first gasket which is moved back and forth in the first syringe barrel, and a plunger which is attached to and detached from the first gasket;

a cap which seals a first port of the first syringe barrel; and

a second syringe having a second port to which the connection device is attached, wherein

when the second member of the connection device reaches a second position, the hollow needle exposed from the second internal space can penetrate the first gasket.