[CLAIMS]

[Claim 1]

A medicinal fluid injection device, which injects medicinal fluid into skin of a subject, comprising:

a case part which forms an outward appearance;

a medicinal fluid placing part, which is mounted on the case part, and, to which a storage container storing medicinal fluid therein is mounted;

a medicinal fluid supply part which is connected with the storage container to supply the medicinal fluid;

a medicinal fluid pressurization part which is mounted on the case part and is connected to the medicinal fluid supply part to pressurize the supplied medicinal fluid; and

a medicinal fluid discharge part which is mounted on the medicinal fluid supply part to inject the pressured medicinal fluid from the medicinal fluid supply part into the skin,

wherein the medicinal fluid discharge part includes:

an outer case on which a plurality of needles are mounted, the plurality of needles transfer the medicinal fluid at a number of points over skin of the subject;

an inner case comprising a front end portion and a rear end portion, wherein the front end portion is inserted and engaged into the outer case and ~~a~~ the rear end portion is engaged and mounted to the medicinal fluid supply part; and

a through hole which is formed in the inner case to generate a microjet of the pressured medicinal fluid, the through hole passing through the inner case from the front end portion to the rear end portion,

wherein the microjet of the pressured medicinal fluid is transferred at the number of points over the skin of the subject through the plurality of needles.

[Claim 2]

The medicinal fluid injection device according to claim 1,

wherein the medicinal fluid discharge part further includes a spacing part which is detachably mounted at a front end portion of

the outer case in order to uniformly maintain a distance between the medicinal fluid discharge part and a target skin and to place the plural needles therein, and

wherein front end portions of the plural needles uniformly protrude from the front end portion of the outer case.

[Claim 3]

The medicinal fluid injection device according to claim 2,

wherein the outer case includes a combining groove formed on the inner circumferential surface of a rear end portion thereof and the inner case includes a combining protrusion formed on the outer circumferential surface thereof, so that the outer case and the inner case are combined together by combination of the combining protrusion and the combining groove.

[Claim 4]

The medicinal fluid injection device according to claim 3,

wherein the outer case and the inner case are combined together by an adhesive.

[Claim 5]

The medicinal fluid injection device according to claim 4,

wherein the combining groove includes: a vertical combining groove formed in the length direction from the rear end portion of the outer case; and

a horizontal combining groove which extends from the vertical combining groove and is formed in a rotational direction of the inner circumferential surface of the outer case.

[Claim 6]

The medicinal fluid injection device according to claim 5, wherein the medicinal fluid discharge part further includes:

through holes formed at the front end portion of the outer case so that the plurality of needles penetrate the through holes;

a connection part for connecting rear end portions of the plurality of needles located inside the outer case with one another; and

elastic members which are respectively fit to the plural needles located inside the outer case, each of the elastic members having one end which is supported on one side of the connection part and the other end which is supported on the inner surface of the outer case so as to provide the plural needles with an elastic force.

[Claim 7]

The medicinal fluid injection device according to claim 6, wherein the medicinal fluid placing part includes: a motor which pressurizes the storage container so as to supply the medicinal fluid from the storage container to the medicinal fluid supply part at a predetermined ratio per hour, wherein the medicinal fluid is repeatedly and consecutively supplied within a range of 50 ㎕ to 250㎕ at a time; and a control part for controlling operation of the motor.

[Claim 8]

The medicinal fluid injection device according to claim 7, wherein the plural needles are arranged in a row.

[Claim 9]

The medicinal fluid injection device according to claim 8, further comprising:

an air pressure supplying part for supplying air pressure;

a control part which is connected to the air pressure supplying part and to the medicinal fluid pressurized part so as to guide the air pressure supplied from the air pressure supplying part to the medicinal fluid pressurization part; and

a switch part which is connected to the control part to control a supply of the air pressure.

[Claim 10]

The medicinal fluid injection device according to claim 9, wherein the diameter of the through hole which is formed in the inner case is within a range of 50㎛ to 125㎛, and

wherein the medicinal fluid pressurization part is operated by an air compressor or compressed gas to supply pressure of 1 bar to 10 bar.