Claims

[Claim 1] A catheter assembly (10) comprising:
a catheter (12);
a catheter hub (14) having a distal section and a proximal section, wherein the distal section is joined to the catheter (12) and the proximal section defines a chamber (24);
a needle (16) extending through the catheter hub (14) and the catheter (12) and defining an axial direction, wherein the needle (16) has opposite proximal and distal ends, the distal end forming a needle tip (18);
a needle hub (20) attached to the proximal end of the needle (16); and
a needle guard (26) slidably arranged on the needle (16), wherein the needle guard (26) is partly or completely retained in the chamber (24) of the catheter hub (14) or the needle guard (26) is completely outside the catheter hub (14) by means of a retaining arm (54) engaging the outside of the catheter hub (14) when the needle (16) extends through the catheter hub (14) and the catheter (12), and wherein the needle guard (26) is removable from the catheter hub (14) once the needle tip (18) is received in the needle guard (26) upon withdrawal of the needle (16) from the catheter (12).

[Claim 2] A catheter assembly (10) in accordance with claim 1, wherein a proximal end of theretaining arm (54) is connected to a base portion of the needle guard (26) by means of a transverse segment (56), in particular wherein the transverse segment (56) extends generally in a radial direction and/or from a proximal end region of the needle guard (26).

[Claim 3] A catheter assembly (10) in accordance with claim 1 or 2, wherein theretaining arm (54) extends not parallel to the axial direction and, in particular, forms an angle in the range between 0° and 10° with the axial direction, in particular such that a clearing between the retaining arm (54) and the catheter hub (14) narrows towards a distal end of the retaining arm (54).

[Claim 4] A catheter assembly (10) in accordance with any one of claims 1 to 3, wherein a hook-like protrusion (58) is provided in the region of a distal end of theretaining arm (54).

[Claim 5] A catheter assembly (10) in accordance with any one of the preceding claims, wherein a projection (60) or a recess or a combination of a

projection and a recess is provided on the outer surface (62) of the catheter hub (14) for engagement with the retaining arm (54), in particular with a hook-like protrusion (58) provided in the region of a distal end of theretaining arm (54).

[Claim 6] A catheter assembly (10) in accordance with any one of the preceding claims, wherein at least one supporting arm(66)for engaging the outer surface (62) of the catheter hub (14) is provided on a side of the needle guard (26) opposite from the retaining arm(54).

[Claim 7] A catheter assembly (10) in accordance with any one of the preceding claims, whereinthe needle guard (26) comprises a generally cylindrical base portion (28) in the region of its proximal end and first and second arms (30, 32) extending in a generally axial direction from a distal side of the base portion (28), wherein the first and second arms (30, 32) are surrounded by a tension element, e.g. an elastic band (48), in a distal region of the first and second arms.

[Claim 8] A catheter assembly (10) in accordance with claim 7, wherein thefirst and second arms (30, 32) are spread apart by the needle (16) extending completely through the needle guard (26) such that the tension element (48) is brought into retaining engagement with an inner surface (64) of the catheter hub (14).

[Claim 9] A catheter assembly (10) in accordance with claim 7 or 8, whereina transverse wall (36) is arranged in a distal region ofone of thefirst and secondarms(30, 32), wherein a groove (38) is provided in a side (40) of the transverse wall (36), the groove (38) extending substantially in the axial direction.

[Claim 10] A catheter assembly (10) in accordance with any one of claims 1 to 10, wherein the base portion (28) of the needle guard (26) has an axial bore (52) extending therethroughfor receiving the needle (16), wherein the profile of the bore (52) is adapted to theprincipal outer profileof the needle (16), and the needle(16) has a change in profile near the needle tip (18), said change in profilehaving anouter profile one dimension of which is larger than a maximum dimension of the profile of the bore (52).

CLAIMS

1. A catheter assembly (10) comprising:
a catheter (12);
a catheter hub (14) having a distal section and a proximal section, wherein the distal section is joined to the catheter (12) and the proximal section defines a chamber (24);
a needle (16) extending through the catheter hub (14) and the catheter (12) and defining an axial direction, wherein the needle (16) has opposite proximal and distal ends, the distal end forming a needle tip (18);
a needle hub (20) attached to the proximal end of the needle (16); and
a needle guard (26) slidably arranged on the needle (16), wherein the needle guard (26) is partly or completely retained in the chamber (24) of the catheter hub (14) or the needle guard (26) is completely outside the catheter hub (14) by means of a retaining arm (54) engaging the outside of the catheter hub (14) when the needle (16) extends through the catheter hub (14) and the catheter (12), wherein the needle guard (26) is removable from the catheter hub (14) once the needle tip (18) is received in the needle guard (26) upon withdrawal of the needle (16) from the catheter (12) and wherein the retaining arm (54) extends not parallel to the axial direction and, in particular, forms an angle in the range between 0° and 10° with the axial direction, in particular such that a clearing between the retaining arm (54) and the catheter hub (14) narrows towards a distal end of the retaining arm (54).

2. A catheter assembly (10) in accordance with claim 1, w h e r e i n a proximal end of the retaining arm (54) is connected to a base portion of the needle guard (26) by means of a transverse segment (56), in particular wherein the transverse segment (56) extends generally in a radial direction and/or from a proximal end region of the needle guard (26).

3. A catheter assembly (10) in accordance with any one of claims 1 to 2, w h e r e i n a hook-like protrusion (58) is provided in the region of a distal end of the retaining arm (54).

4. A catheter assembly (10) in accordance with any one of the preceding claims, w h e r e i n a projection (60) or a recess or a combination of a projection and a recess is provided on the outer surface (62) of the catheter hub (14) for engagement with the retaining arm (54), in particular with a hook-like protrusion (58) provided in the region of a distal end of the retaining arm (54).

5. A catheter assembly (10) in accordance with any one of the preceding claims, w h e r e i n at least one supporting arm (66) for engaging the outer surface (62) of the catheter hub (14) is provided on a side of the needle guard (26) opposite from the retaining arm (54).

6. A catheter assembly (10) in accordance with any one of the preceding claims, w h e r e i n the needle guard (26) comprises a generally cylindrical base portion (28) in the region of its proximal end and first and second arms (30, 32) extending in a generally axial direction from a distal side of the base portion (28), wherein the first and second arms (30, 32) are surrounded by a tension element, e.g. an elastic band (48), in a distal region of the first and second arms.

7. A catheter assembly (10) in accordance with claim 6, w h e r e i n the first and second arms (30, 32) are spread apart by the needle (16) extending completely through the needle guard (26) such that the tension element (48) is brought into retaining engagement with an inner surface (64) of the catheter hub (14).

8. A catheter assembly (10) in accordance with claim 6 or 7, w h e r e i n a transverse wall (36) is arranged in a distal region of one of the first and second arms (30, 32), wherein a groove (38) is provided in a side (40) of the transverse wall (36), the groove (38) extending substantially in the axial direction.

9. A catheter assembly (10) in accordance with any one of claims 1 to 8, w h e r e i n the base portion (28) of the needle guard (26) has an axial bore (52) extending therethrough for receiving the needle (16), wherein the profile of the bore (52) is adapted to the principal outer profile of the needle (16), and the needle (16) has a change in profile near the needle tip (18), said change in profile having an outer profile one dimension of which is larger than a maximum dimension of the profile of the bore (52).

*****