When the drug delivery device is assembled or parts of the drug delivery device, e.g. the cartridge 3, are exchanged, the parts of the dose setting and delivery mechanism shall be positioned in a predetermined position with respect to the cartridge 3 or the housing of the drug delivery device. If the parts are positioned in the predetermined position, which includes that the piston rod 12 contacts the bung 9, this ensures that a predetermined dose is delivered when the drug delivery device is used. Fixing members (not shown in figure 1) which are described below are provided for securing the cartridge in its predetermined position. The cartridge 3 is secured against axial displacement, especially against distal displacement, so that the bung 9 remains in contact with the piston rod 12.

Figure 2 shows an embodiment of a cartridge holder ~~32~~ 32. The distal part of the cartridge holder 32 is formed as needle hub 14 in which the neck portion 6 and the skirt 29 of the cartridge (not shown in figure 2) can be placed. The needle hub 14 comprises an outer thread 16 suitable for coupling the needle hub 14 with the needle unit 15 (not shown in figure 2).

Two fixing members 21 are located on opposite sides of the needle hub 14, which means that the fixing members 21 are set up at a 180 degree angle to one another. In Figure 2 only one of the fixing members 21 is visible. The fixing member 21 which has an outer side 41 and an inner side 42 (not shown in figure 2 but in figure 3) is located in an opening of the needle hub 14 and connected with the needle hub 14, so that the fixing member 21 is moveable radially inwardly from a first position to a second position. When a force impacts to the outer side 41 of the fixing member 21, the inner side 42 of the fixing member 21 is moved towards the cartridge 3 which is located inside the cartridge holder 2.

In this embodiment the fixing member 21 is flexible and integrally formed with the needle hub 14. The fixing member is formed as spring arm. The fixing member 21 has the outer side 41, the inner side 42 (not shown in figure 2 but in figure 3) and a side 43 which is connected with the needle hub 14. An edge 44 of the fixing member 21 extends from one end of the side 43 which is connected with the needle hub 14 to the other end of this side, wherein the edge 43 is separated from the needle hub 14 by a cut-out 22. The cut-out 22 may be U-shaped, V-shaped or may have any form which is suitable for

profile of the distal portion of the cartridge 3, so that the catch portion 25 is positioned behind the skirt 29 of the cartridge, which means that the catch portion 25 lies on the proximal edge of the skirt 29 or the flanged rim 8 and at least partly engages with the neck portion 6. Partly engages means that the catch portion 25 extends radially inwardly with respect to the skirt 29 when the fixing member 25 is moved inwardly. In one embodiment the inner side 42 of the fixing member 21 is sloped so that it matches or substantially matches with the ~~button~~ bottom edge of the flanged rim 8.

When the needle unit 15 is attached to the needle hub 14, the first protrusion 24, which protrudes over the thread 16, is pushed by the inner wall of the needle unit 15 radially inwardly so that the first protrusion 24 is aligned with the ribs of the thread 16. The slope of the catch portion 25 lies behind the ~~button~~ bottom edge of the flanged rim 8 when the fixing
member is bent radially inwardly, thereby fixing and securing the cartridge 3 against axial displacement.

Figure 4 shows a detailed view of the proximal part of an embodiment of the cartridge holder 2.

The proximal part of the cartridge holder 2 is configured to be inserted to the body member 1 (not shown in figure 4). An outer thread 17 formed by a helical structure is located on the connecting piece 13 which is located at the proximal end of the cartridge holder 2.

The connecting piece 13 comprises two fixing members 21 which are set up at a 180 degree angle to one another. In Figure 4 only one of the fixing members 21 is visible. The fixing member 21 which has an outer side 41 and an inner side 42 (not shown in figure 4) is located in an opening of the connecting piece 13 and is connected with the connecting piece 13, so that the fixing member 21 is moveable inwardly from the first position to the second position. Thus the inner side 42 of the fixing member 21 is moved towards to cartridge 3 (not shown in figure 4) located inside the cartridge holder 2 when a force impacts on the outer side 41 of the fixing member 21. In this embodiment the fixing member 21 is flexible and integrally formed with the connecting piece 13. The fixing member 21 is formed as spring arm which is separated from the connecting piece

13 by a U-shaped cut-out 22. In an alternative embodiment (not shown) the fixing member is connected to the needle hub 14 by means of a hinge.

The fixing member 21 comprises a first protrusion 24 on which a force can impact so that the fixing member 21 is bent inwardly. In the first position, which means that the needle unit 15 is not attached to the needle hub 14, the fixing member 21 is positioned so that the first protrusion 24 protrudes over the ribs of the thread 17.

In the second position the flexible fixing member 21 is suitable to secure the cartridge 3 against axial displacement. When the body member 1 is being attached to the connecting piece 13, the connecting piece 13 is inserted in the body member 1, thereby the inner wall of the body member 1 abuts on the first protrusion 24 of the fixing members 21 so that the fixing members 21 are pushed radially inwardly to the second position in which the first protrusions 24 is aligned with the ribs of the thread 17.

Figure 5 shows a detailed view of the proximal part of an alternative embodiment of the cartridge holder 3.

This embodiment is similar to the one shown in figure 4. In this embodiment the fixing member is formed as spring arm which is positioned orthogonal to the longitudinal axis of the cartridge holder 32. Contrary to that, the embodiment shown in figure 4 has a spring arm which is positioned parallel to the longitudinal axis.

Figure 6 shows a sectional view of the cartridge holder 2 which is shown in figure 5 during attachment along the line A-A'. For clarity reason only one of the fixing members 21 is shown in figure 6.

Figure 6 shows the cartridge holder 2 in which the cartridge 3 is inserted during attachment, which means that the connecting piece 13 of the cartridge holder 2 is being inserted in the body member 1 by screwing. The body member 1 has not reached the stop 19 (not shown in figure 6).

In a first state, which is the state during attachment, the inner side 42 of the fixing member 21 is aligned with the inner wall of the connecting piece 13, so that the

Claims

1. A cartridge holder (2) having a distal end and a proximal end, the cartridge holder (2) comprising

a coupling housing portion (13,14) in which a cartridge (3) can be inserted at least partly, the coupling housing portion (13, 14) being configured to be coupled to a part (11,15) of a drug delivery device,

a fixing member (21) being connected with the coupling housing portion (13, 14), the fixing member (21) being flexible and integrally formed with the coupling housing portion (13,14) and having an inner side (42) and an outer side (41), the fixing member (21) being further movable radially inwardly with respect to the coupling housing portion (13, 14) to a position in which the fixing member (21) is suitable for securing the cartridge (3) against distal displacement of the cartridge (3), wherein the fixing member (21) can be moved towards a longitudinal axis (50) of the cartridge holder (2), i.e. into a space which is provided for the cartridge (3) if it is inserted in the cartridge holder (2), so that the inner side (42) abuts on the cartridge (3) when a force impacts on the outer side (41).

2. The cartridge holder (2) according to claim 1, wherein the fixing member (21) has a side (43) which is connected with the coupling housing portion (13, 14), an edge (44) of the fixing member (21) extending from one end of the side (43) which is connected with the coupling housing portion (13, 14) to the other end of this side (43), the edge (44) being separated from the coupling housing portion (13, 14) by a cut-out (22).

3. The cartridge holder (2) according to claim 1 or 2, wherein the fixing member (21) comprises a first protrusion (24) formed on an outer side (41) of the fixing member (21).

4. The cartridge holder (2) according to any of the claims 1 to 3, wherein the fixing member (21) comprises a catch portion (25) formed on an inner side (42) of the fixing member (21).

5. The cartridge holder (2) according to any of the claims 1 to 4, wherein the coupling housing portion (13,14) comprises a thread (17,16).

6. The cartridge holder (2) according to any of the claims 1 to 5, wherein the coupling housing portion (14) is configured to be coupled with a needle unit (15).

7. The cartridge holder (2) according to any of the claims 1 to 5, wherein the coupling housing portion (13) is configured to be coupled with a body member (1) of the drug delivery device.

8. A drug delivery device comprising a cartridge holder (2) according to any of the claims 1 to 7 and further comprising a cartridge (3) which is located in the cartridge holder (2), wherein the part (11, 15) of the drug delivery device is coupled with the coupling housing portion (13, 14), thereby the part (11, 15) of the drug delivery device abuts on the fixing member (21) so that the fixing member (21) secures the cartridge (3) against distal displacement.

9. The drug delivery device according to claim 8, wherein the coupling housing portion (13, 14) is inserted in the part (11, 15) of the drug delivery device.

10. The drug delivery device according to claim 8 or 9, wherein the part (11, 15) of the drug delivery device comprises a second protrusion (31) which abuts on the fixing member (21).

11. The drug delivery device according to any of the claims 8 to 10, wherein the fixing member (21) is configured to at least partly engage with a cavity provided in the cartridge (3) or a necking (6) of the cartridge.

12. The drug delivery device according to claim 11, wherein the cartridge (3) has a neck portion (6) and a skirt (29) which radially protrudes over the neck portion (6), the fixing member (21) being configured to engage at least partly with the neck portion (6).

13. The drug delivery device according to any of the claims 8 to 12, wherein the fixing member (21) abuts on the cartridge (3) so that a force-fit connection is formed.

14. A method for securing a cartridge (3) in a cartridge holder (2) according to any of claims 1 to 7, the method comprising:

inserting the cartridge (3) into the cartridge holder (2) so that the cartridge (3) is at least partly inserted in the coupling housing portion (13, 14) of the cartridge holder (2),

coupling the coupling housing portion (13, 14) with the part (1, 15) of the drug delivery device, so that the fixing member (21) moves radially inwardly towards the longitudinal axis (50) to a position in which the fixing member (21) secures the cartridge (3) against distal displacement.

Claims

1. A cartridge holder (2) having a distal end and a proximal end and a longitudinal axis (50), the cartridge holder (2) comprising
a coupling housing portion (13,14) in which a cartridge (3) can be inserted at least partly, the coupling housing portion (13, 14) being configured to be coupled to a part (11,15) of a drug delivery device by inserting the coupling housing portion (13, 14) in said part (11, 15),
a fixing member (21) being connected with the coupling housing portion (13, 14) and being a wall section of the coupling housing portion (13, 14), wherein
the fixing member (21) is able to be bent towards the longitudinal axis (50) to a position in which the fixing member (21) engages with a neck portion (6) of the cartridge (3), thereby securing the cartridge (3) against distal displacement of the cartridge (3).

2. The cartridge holder (2) according to claim 1, wherein the fixing member (21) is flexible and integrally formed with the coupling housing portion (13,14).

3. The cartridge holder (2) according to claim 1 or 2, wherein the fixing member (21) has a side (43) which is connected with the coupling housing portion (13, 14), an edge (44) of the fixing member (21) extending from one end of the side (43) which is connected with the coupling housing portion (13, 14) to the other end of this side (43), the edge (44) being separated from the coupling housing portion (13, 14) by a cut-out (22).

4. The cartridge holder (2) according to any of the claims 1 to 3, wherein the fixing member (21) comprises a first protrusion (24) formed on an outer side (41) of the fixing member (21).

5. The cartridge holder (2) according to any of the claims 1 to 4, wherein the fixing member (21) comprises a catch portion (25) formed on an inner side (42) of the fixing member (21).

6. The cartridge holder (2) according to any of the claims 1 to 5, wherein the coupling housing portion (13,14) comprises a thread (17,16).

7. The cartridge holder (2) according to any of the claims 1 to 6, wherein the coupling housing portion (14) is configured to be coupled with a needle unit (15).

8. The cartridge holder (2) according to any of the claims 1 to 6, wherein the coupling housing portion (13) is configured to be coupled with a body member (1) of the drug delivery device.

9. A drug delivery device comprising a cartridge holder (2) according to any of the claims 1 to 8 and further comprising a cartridge (3) which is located in the cartridge holder (2), wherein the part (11, 15) of the drug delivery device is coupled with the coupling housing portion (13, 14), thereby the part (11, 15) of the drug delivery device abuts on the fixing member (21) so that the fixing member (21) secures the cartridge (3) against distal displacement.

10. The drug delivery device according to claim 9, wherein the coupling housing portion (13, 14) is inserted in the part (11, 15) of the drug delivery device.

11. The drug delivery device according to claim 9 or 10, wherein the part (11, 15) of the drug delivery device comprises a second protrusion (31) which abuts on the fixing member (21).

12. The drug delivery device according to any of the claims 9 to 11, wherein the fixing member (21) is configured to at least partly engage with a cavity provided in the cartridge (3) or a necking (6) of the cartridge.

13. The drug delivery device according to claim 12, wherein the cartridge (3) has a neck portion (6) and a skirt (29) which radially protrudes over the neck portion (6), the fixing member (21) being configured to engage at least partly with the neck portion (6).

14. The drug delivery device according to any of the claims 9 to 13, wherein the fixing member (21) abuts on the cartridge (3) so that a force-fit connection is formed.

15. A method for securing a cartridge (3) in a cartridge holder (2) according to any of claims 1 to 8, the method comprising:

inserting the cartridge (3) into the cartridge holder (2) so that the cartridge (3) is at least partly inserted in the coupling housing portion (13, 14) of the cartridge holder (2),

coupling the coupling housing portion (13, 14) with the part (11, 15) of the drug delivery

device, so that the fixing member (21) is bent towards the longitudinal axis (50) to a position in which the fixing member (21) secures the cartridge (3) against distal displacement.