Claims

1. A safety device (1) for a pre-filled syringe (2), comprising
- a substantially cylindrical and hollow support body (1.2) comprising at least one resilient arm (1.2.3) and
- a hollow needle shield (1.1) slideably arranged relative to the support body (1.2), wherein the needle shield (1.1) or a needle shield assembly comprises at least one curved actuation ramp (1.1.2) protruding in a lateral direction (L) perpendicular to a central axis (A) of the safety device (1.1), characterized in that the curved actuation ramp (1.1.2) comprises a first lateral dimension (L1) at a proximal end of the needle shield (1.1) and a second lateral dimension (L2) exceeding the first lateral dimension (L1) at a distal end of the needle shield (1.1), whereby the resilient arm (1.2.3) engages the curved actuation ramp (1.1.2) when the needle shield (1.1) is slid relative to the support body (1.2).

2. A safety device (1) according to claim 1, characterized in that the resilient arm (1.2.3) is made from a plastics material.

3. A safety device (1) according claim 1 or 2, characterized in that the resilient arm (1.2.3) is integrally formed to the support body (1.2).

4. A safety device (1) according to one of the previous claims, characterized in that the resilient arm (1.2.3) is non-energized in a rest position, whereas the resilient arm (1.2.3) in the rest position extends essentially parallel to the central axis (A) and over a substantial axial length of the support body (1.2).

5. A safety device (1) according to one of the previous claims, characterized in that the needle shield (1.1) is slideable with respect to the support body (1.2) from an initial position (I) to a retracted position (II) and

further to an advanced position (III), wherein the needle shield (1.1) protrudes the support body (1.2) in the initial position (I) and in the advanced position (III) and whereas the needle shield (1.1) is substantially received within the support body (1.2) in the retracted position (II).

6. A safety device (1) according to claim 5, characterized in that the needle shield (1.1) in the retracted position (II) is biased with respect to the support body (1.2) in a distal direction by the stressed and energized resilient arm (1.2.3) that is bent in the lateral direction (L).

7. A safety device (1) according to claim 5, characterized in that the resilient arm (1.2.3) is in the rest position when the needle shield (1.1) is in the initial position (I).

8. A safety device (1) according to one of the previous claims, characterized in that the curved actuation ramp (1.1.2) is integrally formed to the needle shield (1.1).

9. A safety device (1) according to one of the previous claims, characterized in that the needle shield (1.1) comprises a skin-contact flange(1.1.1) of increased surface area.

10. A safety device (1) according to one of the previous claims, characterized in that the needle shield (1.1) comprises two laterally protruding curved actuation ramps (1.1.2) that protrude opposite sides of the needle shield (1.1).

11. A safety device (1) according to one of the previous claims, characterized in that the safety device (1) comprises a substantially cylindrical outer body (1.3) that is slideably arranged with respect to the support body (1.2), whereas the outer body (1.3) comprises at least one axial

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slot (1.3.3) sized to receive the resilient arm (1.2.3) and/or the curved actuation ramp (1.1.2).

12. An injection device (D) comprising a pre-filled syringe (2) with a hypodermic needle (2.1) attached to a distal end of the pre-filled syringe (2) and a safety device (1) according to one of the previous claims 1 to 11 for the pre-filled syringe (2), wherein the safety device (1) comprises

- a substantially cylindrical and hollow support body (1.2) comprising at least one resilient arm (1.2.3) and
- a hollow needle shield (1.1) slideably arranged relative to the support body (1.2), wherein the needle shield (1.1) comprises at least one curved actuation ramp (1.1.2) protruding in a lateral direction (L) perpendicular to a central axis (A) of the safety device (1.1) characterized in that the curved actuation ramp (1.1.2) comprises a first lateral dimension (L1) at a proximal end of the needle shield (1.1) and a second lateral dimension (L2) exceeding the first lateral dimension (L1) at a distal end of the needle shield (1.1), wherein the resilient arm (1.2.3) engages the curved actuation ramp (1.1.2) when the needle shield (1.1) is slid relative to the support body (1.2), wherein the hypodermic needle (2.1) protrudes the distal end of the support body (1.2) and is surrounded by the needle shield (1.1) in an initial position (I) and/or in an advanced position (III).

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Claims:

1. A safety device for a pre-filled syringe, comprising:

a substantially cylindrical and hollow support body comprising at least one resilient arm; and

a hollow needle shield slideably arranged relative to the support body, the needle shield or a needle shield assembly having at least one curved actuation ramp protruding in a lateral direction (L) perpendicular to a central axis (A) of the safety device;

wherein the curved actuation ramp comprises a first lateral dimension (L1) at a proximal end of the needle shield and a second lateral dimension (L2) exceeding the first lateral dimension (L1) at a distal end of the needle shield, whereby the resilient arm engages the curved actuation ramp when the needle shield slides relative to the support body.

2. A safety device according to claim 1, wherein the resilient arm is made from a plastics material.

3. A safety device according to claim 1 or 2, wherein the resilient arm is integrally formed to the support body.

4. A safety device according to any one of the previous claims, wherein the resilient arm is non-energized in a rest position, whereas the resilient arm in the rest position extends essentially parallel to the central axis (A) and over a substantial axial length of the support body.

5. A safety device according to any one of the previous claims, wherein the needle shield is slideable with respect to the support body from an initial position (I) to a retracted position (II) and further to an advanced position (III), wherein the needle shield protrudes the support body in the initial position (I) and

in the advanced position (III) and whereas the needle shield is substantially received within the support body in the retracted position (II).

6. A safety device according to claim 5, wherein the needle shield in the retracted position (II) is biased with respect to the support body in a distal direction by the stressed and energized resilient arm that is bent in the lateral direction (L).

7. A safety device according to claim 5, wherein the resilient arm is in the rest position when the needle shield is in the initial position (I).

8. A safety device according to any one of the previous claims, wherein the curved actuation ramp is integrally formed to the needle shield.

9. A safety device according to any one of the previous claims, wherein the needle shield comprises a skin-contact flange of increased surface area.

10. A safety device according to any one of the previous claims, wherein the needle shield comprises two laterally protruding curved actuation ramps that protrude opposite sides of the needle shield.

11. A safety device according to any one of the previous claims, further comprising a substantially cylindrical outer body that is slideably arranged with respect to the support body, whereas the outer body comprises at least one axial slot sized to receive the resilient arm and/or the curved actuation ramp.

12. An injection device comprising:

a pre-filled syringe having a hypodermic needle attached to a distal end of the pre-filled syringe; and

a safety device according to any one of claims 1 to 11 for the pre-filled syringe;

wherein the hypodermic needle protrudes the distal end of the support body and is surrounded by the needle shield of the safety device in an initial position (I) or in an advanced position (III).