Claims

1. A device (300) configured to administer a medication, the device comprising:

a lower housing (304) that includes a housing latch (510);

a syringe (324) supported by the lower housing (304) and being configured to retain a medication, the syringe (324) having a needle (332) configured to be inserted into tissue;

a needle guard (316) that is movable relative to the lower housing (304) along a first direction from a first position to a second position so as to expose the needle (332), and subsequently from the second position to a final position whereby the needle (332) is encapsulated;

an upper housing (308) supported relative to the lower housing (304), the upper housing (308) configured to receive a manual force and move with respect to the lower housing (304) along a second direction opposite the first direction from a pre-use position to a dispensed position in response to the manual force; and

a plunger rod (328) carried by the upper housing (308) and movable with the upper housing (308) so as to advance relative to the syringe (324) when the upper housing (308) is moved along the second direction, wherein advancement of the plunger rod (328) relative to the syringe (324) causes the syringe (324) to deliver the medication out the needle (332), the needle guard (316) includes a needle guard latch (620), the needle guard latch (620) being configured to mate with the housing latch (510) when the needle guard (316) moves to the final position such that the housing latch (510) locks the needle guard (316) in the final position,

characterised in that :

the housing latch (510) releasably interferes with the upper housing (308) when the upper housing is in the pre-use position so as to prevent the upper housing (308) from moving toward the dispensed position, and the movement of the needle guard (316) toward the second position, causes the interference to be removed, thereby allowing the upper housing (308) to move from the pre-use position to the dispensed position.

2. The device of claim 1, wherein the needle guard latch (620) includes a groove (624) and the housing latch (510) includes a protrusion (514), and wherein

at least one of the needle guard latch (620) and the housing latch (510) is configured to flex toward the other such that the protrusion (514) is received within the groove (524) when the needle guard (316) is in the final position.

3. The device of claim 1 or claim 2, wherein the needle guard (316) further includes a housing (600) and a pair of extensions (604) extending from the housing (600) along the first direction wherein:

the needle guard (316) further defines an opening (616) in each extension (604) and a needle guard latch (620) extends up from each extension (604) and into the opening (616);

the needle guard latch (620) is resiliently flexible and defines a hinge (628) at its distal end; and

the needle guard latch (620) is configured to flex about its hinge (628) as the needle guard (316) moves from the second position to the final position.

4. The device of any one of claims 1 to 3, wherein:

the groove (624) is situated at the proximal end of the needle guard latch (620); and

the groove (624) receives the protrusion (514) of the housing latch to thereby lock the needle guard (316) in the final position.

5. The device of claim 4, wherein:

the needle guard latch (620) defines a sidewall (632) that extends from the hinge (628) to the groove (624);

at least a portion of the sidewall (632) that is proximate to the groove (624) is angled relative to the first or second directions; and

the protrusion (514) of the housing latches (510) is configured to ride along the angled sidewall portions as the upper housing (308) is moved toward the dispensed position so as to cause the needle guard latches (620) to flex when the needle guard (316) moves from the second position to the final position.

6. The device of any one of claims 1 to 5, wherein the needle guard (316) carries a stop (612) that abuts the housing latch (510) when the needle guard (316) is in the first position so as to maintain the housing latch (510) in interference with the upper housing (308).

7. The device of claim 6, wherein as the needle guard (316) moves toward the second position, the stop (612) moves out of contact with the housing latch (510) such that the housing latch (510) is capable of moving out of interference with the upper housing (308).

8. The device of claim 7, wherein the needle guard (316) includes a needle guard return (317) configured to cause the needle guard (316) to move toward the final position along the second direction and over the needle (332) as the needle (332) is removed from the tissue.

9. The device of claim 8, wherein the needle guard (316) is configured to move a first distance along the first direction when the needle guard (316) is moved to the second position, and the needle guard (316) is configured to move a second distance along the second direction when the needle guard (316) is moved to the final position, the second distance being greater than the first distance.

10. The device of any of claims 1 to 9, wherein the lower housing (304) includes two housing latches (510) and the needle guard (316) includes two needle guard latches (620), each needle guard latch (620) being configured to mate with a respective one of the housing latches (510) when the needle guard (316) moves to the final position.

11. The device of claim 10, wherein the upper housing (308) includes a pair of guides (376) that each abut a respective housing latch (510) when the upper housing (308) is in the pre-use position to thereby retain the upper housing (308) in the pre-use position.

12. The device of claim 11, wherein each guide (376) includes a body and a channel (400) that extends through the body along the first direction, and each housing latch (510) includes a protrusion (514) that is configured to move into a respective one of the channels (400) as the upper housing (308) is moved toward the dispensed position.

13. The device of claim 11 or claim 12 wherein, as the needle guard (316) moves towards the second position, the protrusions (514) ride along the sidewall portions (632) and cause the needle guard latches (620) to flex so that the protrusions (514) can continue their travel along the channels (400).

14. The device of claim 12 or claim 13, wherein each guide (376) defines an abutment surface (398) that leads into a respective one of the channels (400), and wherein each housing latch (510) interferes with a respective abutment surface (398) when the upper housing (308) is in the pre-use position.

15. The device of claim 1, wherein the upper housing (308) includes at least one locking latch (390), and the lower housing (304) defines at least one corresponding latch member such that when the upper housing (308) moves to the dispensed position, the at least one locking latch (390) snaps over the at least one latch member to thereby lock the upper housing (308) in the dispensed position.