is at least partially disposed within the housing and exerts a force to urge the medicament (aka, drug) out the cassette. The latching assembly is coupled to the drive mechanism and includes a first end and a second end. Upon actuating the drive mechanism, the drive mechanism causes the latching assembly to engage the latching portion of the door to secure the door to the housing.

[0009] In some examples, the latching assembly includes a tube cap movably coupled to the drive mechanism, a slotted latch housing coupled to the shell of the housing, and a latch member slidably coupled to the slotted latch housing. The tube cap has a first engaging surface and a second engaging surface. The slotted latch housing has a first end, a second end, and a slot extending between the first end and the second end. The latch member is movable along a length of the slot, and further has a facing surface and a protrusion extending outwardly from the facing surface to engage the latching portion of the door. The first engaging surface of the tube cap engages the facing surface of the latch member such that movement of the tube cap causes the latch member to move along the length of the slot.

[0010] In other examples, the latching assembly is movable between at least a first position whereby the protrusion is disengaged from the latching portion of the door, a second position whereby the protrusion partially engages the latching portion of the door, and a third position whereby the protrusion fully engages the latching portion of the door to restrict the door from opening. The latching portion of the door may include an angled leading surface to engage the protrusion.

[0011] The latching assembly may further include a resilient member to urge the latch member towards the second end of the slotted latch housing. In some forms, the drive mechanism further includes a plunger rod. The tube cap may be slidably coupled to the plunger rod. In some approaches, upon removing the door to insert a cassette into the inner volume of the housing, the latching assembly moves to the second position prior to closing the door.

[0012] In some examples, the door is coupled to the housing via a hinged connection. Further, the latching portion of the door may include a groove to restrict movement of the door.

[0013] A second aspect of the present disclosure provides a latching assembly for a drug delivery device that is configure to be actuated by a drive mechanism at least partially disposed in the drug delivery device. The latching assembly has a tube cap movably coupled to a drive mechanism, a slotted latch housing adapted to be coupled to the drug delivery device, and a latch member slidably coupled to the slotted latch housing. The tube cap has a first engaging surface and a second engaging surface. The slotted latch housing has a first end, a second end, and a slot extending between the first end and the second end. The latch member is movable along a length of the slot and has a facing surface and a protrusion extending outwardly from the facing surface to engage a latching portion of a drug delivery device door. The first engaging surface of the tube cap engages the facing surface of the latch member such that movement of the tube cap causes the latch member to move along the length of the slot.

[0014] A third aspect of the present disclosure provides a method of securing a removable door to a drug delivery device having a housing defining a shell and an inner volume and a cassette removably disposed within the inner volume of the housing and being adapted to contain a medicament (aka, drug) to be administered to a user. A door is coupled to the housing to at least partially enclose the inner volume. The door includes a first end defining a latching portion. A drive mechanism is at least partially disposed in the housing to exert a force to urge the medicament (aka, drug) out of the cassette. A latching assembly having a first end and a second end is coupled to the drive mechanism such that upon actuating the drive mechanism, the drive mechanism causes the latching assembly to engage the latching portion of the door to secure the door to the housing.

BRIEF DESCRIPTION OF THE DRAWINGS

[0015] The above needs are at least partially met through provision of the door latch mechanism for a drug delivery device described in the following detailed description, particularly when studied in conjunction with the drawings, wherein:

[0016] The accompanying figures show embodiments according to the disclosure and are exemplary rather than limiting.

[0017] FIG. 1 is a side view of an embodiment of an autoinjector apparatus comprising a cassette and an autoinjector, showing the cassette prior to installation in the autoinjector.

What is Claimed is:

1. A drug delivery device comprising:

a housing defining a shell and an inner volume;

a cassette adapted to be removably disposed within the inner volume of the housing, the cassette further adapted to contain a drug to be administered to a user;

a door coupled to the housing to at least partially enclose the inner volume of the housing, the door having a first end defining a latching portion;

a drive mechanism at least partially disposed within the housing, the drive mechanism adapted to exert a force to urge the drug out the cassette; and

a latching assembly coupled to the drive mechanism, the latching assembly having a first end and a second end;

wherein upon actuating the drive mechanism, the drive mechanism causes the latching assembly to engage the latching portion of the door to secure the door to the housing.

2. The drug delivery device of claim 1, wherein the latching assembly includes:

a tube cap movably coupled to the drive mechanism, the tube cap having a first engaging surface and a second engaging surface;

a slotted latch housing coupled to the shell of the housing, the slotted latch housing having a first end, a second end, and a slot extending between the first end of the slotted latch housing and the second end of the slotted latch housing; and

a latch member slidably coupled to the slotted latch housing and being movable along a length of the slot, the latch member having a facing surface and a protrusion extending outwardly from the facing surface to engage the latching portion of the door;

wherein the first engaging surface of the tube cap engages the facing surface of the latch member such that movement of the tube cap causes the latch member to move along the length of the slot.

3. The drug delivery device of claim 2, wherein the latching assembly is movable between at least a first position whereby the protrusion is disengaged from the latching portion of the door, a second position whereby the protrusion partially engages the latching portion of the door, and a third position whereby the protrusion fully engages the latching portion of the door to restrict the door from opening.

4. The drug delivery device of claim 2 or 3, wherein the latching portion of the door includes an angled leading surface to engage the protrusion.

5. The drug delivery device of any of claims 2-4, wherein the latching assembly further includes a resilient member to urge the latch member towards the second end of the slotted latch housing.

6. The drug delivery device of any of claims 2-5, wherein the drive mechanism further includes a plunger rod, wherein the tube cap is slidably coupled to the plunger rod.

7. The drug delivery device of any of claims 3-6, wherein upon removing the door to insert a cassette into the inner volume of the housing, the latching assembly moves to the second position prior to closing the door.

8. The drug delivery device of any of claims 1-7, wherein the door is coupled to the housing via a hinged connection.

9. The drug delivery device of any of claims 1-8, wherein the latching portion of the door includes a groove to restrict movement of the door.

10. The drug delivery device of any one of claims 1-9, further comprising a drug disposed in the cassette, the drug comprising etanercept.

11. A latching assembly for a drug delivery device, the latching assembly is configured to be actuated by a drive mechanism at least partially disposed in the drug delivery device, the latching assembly comprising:

a tube cap movably coupled to a drive mechanism, the tube cap having a first engaging surface and a second engaging surface;

a slotted latch housing adapted to be coupled to the drug delivery device, the slotted latch housing having a first end, a second end, and a slot extending between the first end and the second end; and

a latch member slidably coupled to the slotted latch housing and being movable along a length of the slot, the latch member having a facing surface and a protrusion extending outwardly from the facing surface to engage a latching portion of a drug delivery device door;

wherein the first engaging surface of the tube cap engages the facing surface of the latch member such that movement of the tube cap causes the latch member to move along the length of the slot.

12. The latching assembly of claim 11, wherein the latching assembly is movable between at least a first position whereby the protrusion is disengaged from the latching portion of the drug delivery device door, a second position whereby the protrusion partially engages the latching portion of the drug delivery device door, and a third position whereby the protrusion fully engages the latching portion of the drug delivery device door to restrict the drug delivery device door from opening.

13. The latching assembly of claim 11 or 12, wherein the protrusion engages an angled leading surface of the drug delivery device door.

14. The latching assembly of any of claims 11-13, wherein the latching assembly further includes a resilient member urge the latch member towards the second end of the slotted latch housing.

15. The latching assembly of any of claims 11-14, wherein tube cap is slidably coupled to a plunger rod of the drive mechanism.

16. The latching assembly of any of claims 11-15, wherein the latching assembly is adapted to move to the second position upon removing the drug delivery device door.

17. The latching assembly of any of claims 11-16, wherein the protrusion engages a groove formed by latching portion of the drug delivery device door to restrict movement of the drug delivery device door.

18. A method of securing a removable door to a drug delivery device having a housing defining a shell and an inner volume and a cassette removably disposed within the inner volume of the housing and being adapted to contain a drug to be administered to a user, the method comprising:

coupling a door to the housing to at least partially enclose the inner volume, the door having a first end defining a latching portion;

at least partially disposing a drive mechanism within the housing, the drive mechanism adapted to exert a force to urge the drug out of the cassette;

coupling a latching assembly having a first end and a second end to the drive mechanism such that upon actuating the drive mechanism, the drive mechanism causes the latching assembly to engage the latching portion of the door to secure the door to the housing.

19. The method of claim 18, wherein the latching assembly includes:

a tube cap movably coupled to the drive mechanism, the tube cap having a first engaging surface and a second engaging surface;

a slotted latch housing coupled to the shell of the housing, the slotted latch housing having a first end, a second end, and a slot extending between the first end of the slotted latch housing and the second end of the slotted latch housing; and

a latch member slidably coupled to the slotted latch housing and being movable along a length of the slot, the latch member having a facing surface and a protrusion extending outwardly from the facing surface to engage the latching portion of the door;

wherein the first engaging surface of the tube cap engages the facing surface of the latch member such that movement of the tube cap causes the latch member to move along the length of the slot.

20. The method of claim 19, further comprising moving the latching assembly between at least a first position whereby the protrusion is disengaged from the latching portion of the door, a second position whereby the protrusion partially engages the latching portion of the door, and a third position whereby the protrusion fully engages the latching portion of the door to restrict the door from opening.