Claims:

1. Dose setting mechanism for a drug delivery device, preferably a resettable drug delivery device, the mechanism comprising:
a dose setting member (3),
a drive member (4), for driving a piston rod in a distal direction during dose dispensing, the drive member (4) comprising a proximal drive member (4'') and a distal drive member (4'),
a first clutch for releasably coupling the proximal drive member (4'') and the distal drive member (4'),
spring means (7) for biasing the proximal drive member (4'') and the distal drive member (4') in the coupled state during dose setting and dose dispensing, and
engaging means (3a, 4a) associated to the proximal drive member (4'') and to the dose setting member (3),
wherein the engaging means (3a, 4a) are designed and arranged such that the proximal drive member (4'') entrains the dose setting member (3) in the distal direction during dose dispensing but allows a relative axial movement of the proximal drive member (4'') with respect to the dose setting member (3) in the proximal direction.

2. Dose setting mechanism according to claim 1, characterized in that the mechanism is a resettable mechanism further comprising a dose button for transmitting a dispensing force applied by a user to the mechanism, wherein the engaging means (3a, 4a) allow a relative axial movement of the proximal drive member (4'') with respect to the dose setting member (3) in the proximal direction only when the dose button is pressed during or following dose dispense, and resists relative axial movement when the dose button is not depressed during reset.

3. Dose setting mechanism according to claim 1 or 2, characterized in that the engaging means (3a, 4a) comprise a flange (4a) provided on the proximal drive

member (4'') and a corresponding protrusion (3a) provided on the dose setting member (3).

4. Dose setting mechanism according to any of the preceding claims, characterized in that the first clutch rotationally couples the proximal drive member (4'') and the distal drive member (4') during dose setting and dose dispensing and rotationally decouples the proximal drive member (4'') and the distal drive member (4') during resetting of the mechanism.

5. Dose setting mechanism according to any of the preceding claims, characterized in that, when the proximal drive member (4'') is not moved in the proximal direction with respect to the dose setting member (3) then the first clutch will rotationally decouple permitting reset of the piston rod.

6. Dose setting mechanism according to any of the preceding claims further comprising a second clutch (5) for releasably coupling the proximal drive member (4'') and the dose setting member (3), characterized in that the second clutch (5) comprises a tubular element having at least one axial groove (5c) engaging a spline (4b) provided on proximal drive member (4'').

7. Dose setting mechanism according to claim 6, characterized in that the at least one axial groove (5c) is provided with a step (5d) which is located at a transition from a first portion of the groove (5c) having a smaller width to a second portion of the groove having a larger width, wherein the width of the spline (4b) is chosen to allow the spline to slide within both portions of the groove (5c).

8. Dose setting mechanism according to claim 7, characterized in that the a step (5d) in the axial groove (5c) prevents proximal movement of the proximal drive member (4'') during resetting.

9. Dose setting mechanism according to claim 6 or 7, further comprising means for biasing and/or holding the spline (4b) in an angular position with respect to the groove (5c).

10. Dose setting mechanism according to claim 9, characterized in that the means for biasing and/or holding the spline (4b) comprise a clicker mechanism (6) for releasably coupling the second clutch (5) and the proximal drive member (4'') during resetting of the mechanism.

11. Dose setting mechanism according to claim 10, characterized in that the clicker mechanism (6) comprises two clicker parts, the first clicker part (6') being rotationally releasably coupled to the clutch (5), the second clicker part (6'') being rotationally fixed to the proximal drive member (4'') and the two clicker parts (6', 6'') being rotationally releasably coupled to each other.

12. Dose setting mechanism according to any of claims 10 or 11, characterized in that the first clicker part (6') is rotationally fixed to the proximal drive member (4'') by a clicker spline (4c) engaging a corresponding clicker groove (6c), wherein the clicker spline (4c) and/or the clicker groove (6c) has a rounded outline.

13. Dose setting mechanism according to any of the preceding claims, characterized in that the second clutch (5) rotationally couples the dose setting member (3) and the drive member (4) during dose setting and rotationally decouples the dose setting member (3) and the drive member (4) during dose dispensing.

14. Injection device comprising a dose setting mechanism according to any of the preceding claims and a medicament which is preferably contained in a cartridge.

CLAIMS

The invention claimed is:

1. A dose setting mechanism for a drug delivery device, the mechanism comprising:
a dose setting member,

a drive member, for driving a piston rod in a distal direction during dose dispensing, the drive member comprising a proximal drive member and a distal drive member,

a first clutch for releasably coupling the proximal drive member and the distal drive member,

spring means for biasing the proximal drive member and the distal drive member in the coupled state during dose setting and dose dispensing, and

engaging means associated to the proximal drive member and to the dose setting member,

characterized in that the engaging means comprises hooks provided on fingers protruding from the proximal end of the proximal drive member and

a corresponding inwardly protruding flange on the proximal end of the dose setting member

such that the proximal drive member entrains the dose setting member in the distal direction during dose dispensing

but allows a relative axial movement of the proximal drive member with respect to the dose setting member in a proximal direction.

2. A dose setting mechanism according to claim 1, characterized in that the mechanism is a resettable mechanism further comprising a dose button for transmitting a dispensing force applied by a user to the mechanism, wherein the engaging means allow a relative axial movement of the proximal drive member with respect to the dose setting member in the proximal direction only when the dose button is pressed during or following dose dispense, and resists relative axial movement when the dose button is not depressed during reset.

3. A dose setting mechanism according to claim 1, characterized in that the first clutch rotationally couples the proximal drive member and the distal drive member during dose setting and dose dispensing and rotationally decouples the proximal drive member and the distal drive member during resetting of the mechanism.

4. A dose setting mechanism according to claim 1, characterized in that, when the proximal drive member is not moved in the proximal direction with respect to the dose setting member then the first clutch will rotationally decouple permitting reset of the piston rod.

5. A dose setting mechanism according to claim 1, further comprising a second clutch for releasably coupling the proximal drive member and the dose setting member, characterized in that the second clutch comprises a tubular element having at least one axial groove engaging a spline provided on proximal drive member.

6. A dose setting mechanism according to claim 5, characterized in that the at least one axial groove is provided with a step which is located at a transition from a first portion of the groove having a smaller width to a second portion of the groove having a larger width, wherein the width of the spline is chosen to allow the spline to slide within both portions of the groove.

7. A dose setting mechanism according to claim 6, characterized in that the a step in the axial groove prevents proximal movement of the proximal drive member during resetting.

8. A dose setting mechanism according to claim 5, further comprising means for biasing and/or holding the spline in an angular position with respect to the groove.

9. A dose setting mechanism according to claim 8, characterized in that the means for biasing and/or holding the spline comprise a clicker mechanism for releasably coupling the second clutch and the proximal drive member during resetting of the mechanism.

10. A dose setting mechanism according to claim 9, characterized in that the clicker mechanism comprises two clicker parts, the first clicker part being rotationally releasably coupled to the clutch, the second clicker part being rotationally fixed to the proximal drive member and the two clicker parts being rotationally releasably coupled to each other.

11. A dose setting mechanism according to claim 9, characterized in that the first clicker part is rotationally fixed to the proximal drive member by a clicker spline engaging a

corresponding clicker groove, wherein the clicker spline and/or the clicker groove has a rounded outline.

12. A dose setting mechanism according to claim 1, characterized in that the second clutch rotationally couples the dose setting member and the drive member during dose setting and rotationally decouples the dose setting member and the drive member during dose dispensing.

13. An injection device comprising the dose setting mechanism according to claim 1 and a medicament which is preferably contained in a cartridge.