Claims

1. An injection device for administering a fixed dose of a medication comprising:
a housing (2) wherein a drive mechanism comprising a drive member (3) is at least partially enclosed,
the housing having an inner thread,
the inner thread having a dose setting section and a dose dispense section,
the drive member engaging the dose setting section during dose setting and engaging the dose dispense section during dose dispensing,
a dosing element (34) permanently fixed relative to the drive member (3),
wherein the dose can be set by rotating the dosing element (34) relative to the housing (2) in a dose setting direction (s) and the dose can be dispensed by pushing the dosing element (21) towards the housing (2), and
a piston rod threadedly engaged with the housing and with the drive member.

2. The injection device according to claim 1,
wherein a set dose can be cancelled by rotating the dosing element (21) in a direction opposite to the dose setting direction (s).

3. The injection device according to any of claims 1 or 2,

wherein the dosing element (21) is an integral part of the drive member (3).

4. The injection device according to any of claims 1 to 3,
wherein the housing (2) has an inner thread (4) which engages with an engaging feature (31) of the drive member (3).

5. The injection device according to claim 4,
wherein the housing (2) has a longitudinal axis (l) and wherein the inner thread (4) of the housing (2) oscillates between two confining positions (4a, 4b) at the longitudinal axis (l) provides a movement of the engaging feature of the drive member between two confining positions with respect to a longitudinal axis of the housing.

6. The injection device according to claim 5,
wherein along the dose setting direction (s) the inner thread (4) of the housing (2) comprises several consecutive identical segments (40).

7. The injection device according to claim 6,
wherein the drive member (3) comprises two or more engaging features (31) each engaging with a different segment (40) of the inner thread (4) of the housing (2).

8. The injection device according to any of claims 6 or 7,
wherein each segment ~~(40)~~ of the inner thread ~~(4)~~ comprises a dose setting section ~~(41)~~ being inclined against the longitudinal axis ~~(l)~~ and a dose dispense section ~~(42)~~ being less inclined against the longitudinal axis ~~(l)~~ than the dose setting section ~~(42)~~.

9. The injection device according to claim 8,
wherein the dose dispense section ~~(42)~~ runs in a direction parallel to the longitudinal axis ~~(l)~~.

10. The injection device according to any of claims 8 or 9,
wherein during the setting of the dose the engaging feature ~~(31)~~ of the drive member ~~(3)~~ travels along the dose setting section ~~(41)~~ in the dose setting direction ~~(s)~~.

11. The injection device according to any of claims 8 to 10,
wherein during cancelling a dose the engaging feature ~~(31)~~ of the drive member ~~(3)~~ travels along the dose setting section ~~(41)~~ in a direction opposite to the dose setting direction ~~(s)~~.

12. The injection device according to any of claims 1 to 11,
comprising a detent ~~(44)~~ which gives an audible or tactile signal when the dose setting has been completed.

13. The injection device according to any of claims 8 to ~~12~~11,
comprising a non-return feature ~~(45)~~ which allows a movement of the engaging feature ~~(31)~~ of the drive member ~~(3)~~ along the dose setting section ~~(41)~~ and prevents a backward movement along the dose dispense section ~~(42)~~.

14. The injection device according to any of claims 6 to 13,
wherein a segment ~~(40)~~ takes up an angular range of 60°, 72°, 90°, 120° or 180°.

15. The injection device according to any of claims 4 to 14,
wherein the inner thread ~~(4)~~ is closed in itself.

16. The injection device according to any of claims 4 to 14,

wherein the inner thread ~~(4)~~ is terminated.

17. The injection device according to any of claims 1 to 16,
wherein the drive member ~~(3)~~ is a drive sleeve which at least partially encloses a piston rod ~~(5)~~ and has an inner thread ~~(32)~~ which engages with an engaging feature ~~(51)~~ of the piston rod ~~(5)~~.

18. The injection device according to claim 17,
wherein the piston rod ~~(5)~~ is threadedly engaged with the housing.

19. The injection device according to claim 18,
wherein the piston rod ~~(5)~~ is a double-threaded lead screw.

20. The injection device according to any of claims 17 to 19,
wherein the inner thread ~~(32)~~ of the drive sleeve comprises a stop face ~~(33)~~ which prevents the full setting of a dose after the last available dose has been dispensed.

21. The injection device according to claim 20,
wherein during a further dose setting movement after the last available dose has been dispensed the engaging feature ~~(51)~~ of the piston rod ~~(5)~~ abuts against the stop face ~~(33)~~.

22. The injection device according to any of claims 1 to 21 being a pen-type device.

23. The injection device according to any of claims 1 to 22, further comprising ~~wherein a piston rod (5) is provided, the piston rod (5) acting on~~ a piston ~~(61)~~ disposed in a cartridge ~~(6)~~ wherein the medicament is contained, the piston rod acting on the piston and wherein during dispensing the dose the ~~lateral~~ axial movement of the piston rod ~~(5)~~ differs from the ~~lateral~~ axial movement of the drive member ~~(3)~~.

24. The injection device according to claims 23
wherein during dispensing the dose the amount of ~~lateral~~ axial movement of the piston rod ~~(5)~~ is smaller than the amount of ~~lateral~~ axial movement of the drive member ~~(3)~~.

25. The injection device according to any of claims 1 to 24, further comprising ~~wherein a piston rod (5) is provided, the piston rod (5) acting on~~ a piston ~~(61)~~ disposed in a cartridge ~~(6)~~ wherein the medicament is contained, the piston rod acting on the piston and wherein during dispensing the dose the piston rod ~~(5)~~ moves rotationally.

26. Method of operating an injection device that is provided for the administration of a fixed dose of a medication comprising the steps:
A) Setting a dose by rotating a dosing element relative to a housing of the injection device in a dose setting direction to move a drive member that is threadedly engaged with a piston rod according to a dose setting section of an inner thread of the housing,
B) pushing the dosing element towards the housing, whereby during or at the end of step A) the dose can be cancelled by
C) rotating the dosing element in a direction opposite to the dose setting direction to reverse the movement of the drive member.

27. Method of operating an injection device that is provided for the administration of a fixed dose of a medication comprising the steps:
A) Setting a dose by rotating a dosing element relative to a housing of the injection device in a dose setting direction to move a drive member that is threadedly engaged with a piston rod according to a dose setting section of an inner thread of the housing, whereby during or at the end of step A) the dose can be cancelled by
B) rotating the dosing element in a direction opposite to the dose setting direction to reverse the movement of the drive member.

28. Method of any of claims 26 or 27,
wherein for setting a dose, the dosing element ~~(34)~~ is rotated until a stop position ~~(B)~~ is reached,
wherein the dosing element ~~(34)~~ can not be rotated further in the dose setting direction ~~(s)~~.

29. Method of any of claims 26 to 28,
wherein the piston rod ~~(5)~~ is threadedly engaged with the drive member ~~(3)~~.

30. The injection device according to any of claims 1 to 25,
wherein for setting a dose, the dosing element ~~(34)~~ is rotated until a stop position ~~(B)~~ is reached,
wherein the dosing element ~~(34)~~ can not be rotated further in the dose setting direction ~~(s)~~.

~~31. The injection device according to any of claims 1 to 25 and 30,~~

~~comprising a piston rod (5) threadedly engaged with the drive member (3).~~