There is, therefore, a general need to take these disadvantages associated with resetting issues into consideration in the design and development of resettable drug delivery devices. Such desired drug delivery devices would tend to reduce the number of component parts and also tend to reduce manufacturing costs while also making the device less complex to assemble and manufacture. Such desired devices would also tend to simplify the steps required for a user to reset a dose setting mechanism while also making the device less complex and more compact in size.

SUMMARY

Embodiments~~It is an object~~ of the present invention seek to provide an improved resetting mechanism for a reusable drug delivery device.

An embodiment includes~~This object is solved by~~ a driver (e.g. drive sleeve) for driving a spindle of a drug delivery device comprising a first component part (or portion) and a second component part (or portion) rotationally coupled to said first component part. During resetting of the drug delivery device, the first component is rotationally decoupled from the second component. In other words a driver for driving a spindle of a drug delivery device, comprises a first component part; and a second component part operatively coupled to the first component part. During a dose setting of the drug delivery device, both the first and the second component part rotate together. In addition, during resetting of the drug delivery device, the first component is decoupled from the second component and is free to rotate while the second component is prevented from rotating. The first component part may be a unitary molded component.

According to an embodiment of the invention the driver further comprises a spindle, wherein during resetting of said drug delivery device, said spindle is reset to an initial position. Preferably, during said resetting of said drug delivery device, said spindle is reset to said initial position by moving said spindle in an axial direction. This movement may be an axial displacement or a combination of an axial displacement with a rotation, i.e. a movement on a helical path.

Claims

1. A driver for driving a spindle of a drug delivery device, said driver comprising a first component ~~(44; 207)~~ and a second component ~~(46; 212)~~ rotationally coupled to said first component ~~(44; 207)~~, wherein during resetting of said drug delivery device, said first component ~~(44; 207)~~ is rotationally decoupled from said second component ~~(46; 212)~~.

2. The driver of claim 1 wherein first component ~~(207)~~ comprises a first component part ~~(210)~~ and a second component part ~~(211)~~.

3. The driver of claim 1 wherein first component ~~(44; 207)~~ is an integral component part.

4. The driver of any of claims 1 to 3 wherein during resetting of said drug delivery device, said first component ~~(44; 207)~~ is decoupled from said second component ~~(46; 212)~~ by moving said first component in an axial direction.

5. The driver of any of claims 1 to 4 wherein when said drug deliver device is used to set a dose of medication, both said first component ~~(44; 207)~~ and said second component ~~(46; 212)~~ rotate together at a same rate.

6. The driver of any of claims 1 to 5 wherein when said device is used to inject a set dose of medication, both said first component ~~(44; 207)~~ and said second component ~~(46; 212)~~ rotate and/or move in an axial direction.

7. A resettable dose setting mechanism for use with a drug delivery device, said mechanism comprising

a housing ~~(40; 204, 208)~~, a rotating sleeve ~~(10; 206)~~ in rotatable engagement with respect to said housing, the driver ~~(30; 209)~~ of any of claims 1 to 6 having a first

component ~~(44; 207)~~ and a second component ~~(46; 212)~~, said first and said second component being operatively coupled together, and a spindle ~~(42; 214)~~ operatively coupled to said driver,

such that when a user sets a dose by rotating said rotating sleeve, both said first component ~~(44; 207)~~ and said second component ~~(46; 212)~~ of said driver rotate together, and

such that when said user resets said dose setting mechanism, said first component ~~(44; 207)~~ of said driver is decoupled from said second component ~~(46; 212)~~ of said driver and said first component can rotate back to an original position.

8. A dose setting mechanism for a drug delivery device comprising the driver ~~(30; 209)~~ of any of claims 1 to 6 and further comprising a spindle ~~(42; 214)~~ and a spindle guide engaged with said spindle ~~(42; 214)~~, wherein during resetting of said drug delivery device, said spindle ~~(42; 214)~~ rotates while said spindle guide does not rotate.

9. A dose setting mechanism for a drug delivery device comprising the driver ~~(30; 209)~~ of any of claims 1 to 6 and further comprising a dose limiting device ~~(38; 218)~~ wherein during resetting of said drug delivery device, said dose limiting device ~~(38; 218)~~ is reset to an initial position.

10. A dose setting mechanism for a drug delivery device comprising the driver ~~(30; 209)~~ of any of claims 1 to 6 and further comprising a spindle ~~(42; 214)~~ wherein when said drug delivery device is used to inject said set dose of medication, said spindle translates.

11. The dose setting mechanism of any of claims 7 to 10 further comprising a cartridge holder ~~(6)~~ releasably coupled to said dose setting mechanism, wherein decoupling of said first component ~~(44; 207)~~ from said second component ~~(36; 212)~~ is effected by decoupling said cartridge holder from said dose setting mechanism.

12. The dose setting mechanism of any of claims 7 to 11 further comprising a spindle ~~(42; 214)~~ wherein decoupling of said first component ~~(44; 207)~~ from said second component ~~(46; 212)~~ is effected by an axial movement of said spindle.

13. The dose setting mechanism of any of claims 7 to 11 further comprising a biasing means wherein decoupling of said first component ~~(44; 207)~~ from said second component ~~(46; 212)~~ is effected by said biasing means.

14. The dose setting mechanism of any of claims 7 to 13 wherein said housing comprises an outer housing ~~(40; 204)~~.

15. The dose setting mechanism of any of claims 7 to 14 wherein said housing comprises an inner housing ~~(208)~~.