

Claims

1. ~~___~~ A ~~catheter assembly~~ system comprising:

a lock and release connector ~~for a trans-catheter implantable device, the lock and release connector~~ comprising a body, ~~and~~ at least one door engaged with the body, and at least one fastener connecting at least one end of the door to ~~engaged with~~ the body, wherein the door is moveable from a first position to a second position;

an outer tube having a distal opening; and

an implantable medical device disposed in the outer tube wherein the medical device has an extension ~~inner tube disposed in the outer tube;~~

wherein the extension is interposed between the body and the door ~~lock and release connector is fixedly connected to the inner tube.~~

2. A system comprising:

a lock and release connector comprising a body, at least one door engaged with the body, and at least one spring exerting force on the door, wherein the door is moveable from a first position to a second position ~~the catheter assembly of claim 1;~~

an outer tube having a distal opening;

an implantable medical device disposed in the outer tube wherein the medical device has an ~~first~~ extension; and

wherein the ~~first~~ extension is interposed between the body and the door.

~~3. The system of claim 2, wherein the implantable medical device further comprises at least a second extension.~~

~~4. The system of claim 3, wherein the second extension is longer than the first extension.~~

~~5. The system of claim 4, wherein the lock and release connector is configured to release the first extension before releasing the second extension, such that the implantable medical device can fully expand after the first extension is released and before the second extension is released.~~

~~6. The system of any one of claims 2 to 5, wherein the extension is configured to move the at least one door from the first position to the second position, wherein the extension preferably is spring like.~~

~~7. A lock and release connector for a catheter assembly as defined in claim 1 or for a system of any one of claims 2 to 6, the lock and release connector comprising:
a body; and~~

~~at least one door engaged with the body, wherein the door is moveable from a first position to a second position.~~

~~83. The lock and release connector system of claim 72, wherein the door is integral with the body.~~

~~94. The lock and release connector of claim 7 or 8 system of claim 2, wherein the door is connected to the body.~~

~~5. The system of claim 1, and wherein the door preferably is hingedly connected to the body.~~

~~6. The system of claim 2, wherein the door comprises a shape memory material.~~

~~107. The lock and release connector of any one of claims 7 to 9 system of claim 2, further comprising at least one fastener connecting at least one end of the door to the body.~~

~~118. The lock and release connector of any one of claims 7 to 10 system of claim 1, wherein the door is actively controlled to move from a first position to a second position.~~

~~129. A system comprising:~~

~~a lock and release connector comprising a body, at least one door engaged with the body, and The lock and release connector of any one of claims 7 to 11, further comprising a wire, a screw, a separate hinge, or a pin connecting the body and the door, wherein the door is moveable from a first position to a second position;
an outer tube having a distal opening;~~

an implantable medical device disposed in the outer tube wherein the medical device has an extension; and
wherein the extension is interposed between the body and the door.

10. The system of claim 1, further comprising a second door moveable from a first position to a second position, wherein the first and second doors are sequentially moveable from the respective first position to the respective second position.

11. A lock and release connector for a trans-catheter implantable device comprising:
a body;
at least one door engaged with the body, wherein the door is moveable from a first position to a second position; and
at least one fastener connecting at least one end of the door to the body.

12. A lock and release connector for a trans-catheter implantable device comprising:
a body;
at least one door engaged with the body, wherein the door is moveable from a first position to a second position; and
at least one spring exerting force on the door.

13. The lock and release connector of claim 12, wherein the door is integral with the body.

14. The lock and release connector of claim 12, wherein the door is connected to the body.

15. The lock and release connector of claim 11, wherein the door is hingedly connected to the body.

16. The lock and release connector of claim 12, wherein the door comprises a shape memory material.

17. The lock and release connector of claim 12, wherein the door comprises a nickel titanium alloy.

18. The lock and release connector of claim 12, further comprising at least one fastener connecting at least one end of the door to the body.

19. The lock and release connector of claim 11, wherein the door is actively controlled to move from the first position to the second position.

20. A lock and release connector for a trans-catheter implantable device comprising:
a body;
at least one door engaged with the body, wherein the door is moveable from a first position to a second position; and
a wire, a screw, a separate hinge, or a pin connecting the body and the door.

21. The lock and release connector of claim 11, further comprising a second door moveable from a first position to a second position, wherein the first door and the second door are sequentially moveable from the respective first position to the respective second position.

22. The lock and release connector of claim 21, further configured to move the first door to the second position such that a first extension of an implantable medical device can be released therefrom while a second extension continues to be held under the second door.

23. The system of claim 9, wherein the door is hingedly connected to the body.

24. The system connector of claim 9, wherein the door is actively controlled to move from the first position to the second position.

25. The system of claim 9, further comprising a second door moveable from a first position to a second position, wherein the first and second doors are sequentially moveable from the respective first position to the respective second position.

26. The system of claim 2, wherein the door is hingedly connected to the body.

27. The system connector of claim 2, wherein the door is actively controlled to move from the first position to the second position.

28. The system of claim 2, further comprising a second door moveable from a first position to a second position, wherein the first and second doors are sequentially moveable from the respective first position to the respective second position.

29. The lock and release connector of claim 20, wherein the door is hingedly connected to the body.

30. The lock and release connector of claim 20, wherein the door is actively controlled to move from the first position to the second position.

31. The lock and release connector of claim 20, further comprising a second door moveable from a first position to a second position, wherein the first door and the second door are sequentially moveable from the respective first position to the respective second position.

32. The lock and release connector of claim 31, further configured to move the first door to the second position such that a first extension of an implantable medical device can be released therefrom while a second extension continues to be held under the second door.

33. The lock and release connector of claim 12, wherein the door is hingedly connected to the body.

34. The lock and release connector of claim 12, wherein the door is actively controlled to move from the first position to the second position.

35. The lock and release connector of claim 12, further comprising a second door moveable from a first position to a second position, wherein the first door and the second door are sequentially moveable from the respective first position to the respective second position.

36. The lock and release connector of claim 35, further configured to move the first door to the second position such that a first extension of an implantable medical device can be released therefrom while a second extension continues to be held under the second door.

~~13. The lock and release connector of any one of claims 7 to 12, further comprising at least one spring exerting force on the door.~~

~~14. The lock and release connector of any one of claims 7 to 13, further comprising a second door moveable from a first position to a second position;~~

~~wherein the first door and the second door are sequentially moveable from the respective first position to the respective second position.~~

~~15. The lock and release connector of claim 14, further configured to move the first door to the second position such that a first extension of an implantable medical device can be released therefrom while a second extension continues to be held under the second door.~~