

WHAT IS CLAIMED IS:

1. A docking device for docking a prosthetic valve at a native valve of a heart, the docking device comprising:
a coiled anchor that comprises:
a proximal tip and a distal tip;
at least one full or partial central turn having a first thickness and defining a diameter;
an extension having a length extending from an upper end of the at least one full or partial central turn, the extension having a second thickness that is less than the first thickness;
an upper turn extending from an upper end of the extension, the upper turn having a third thickness that is greater than the second thickness;
a cover layer surrounding the coiled anchor along at least a part of the at least one full or partial central turn, and wherein the cover layer is connected to the coiled anchor;
at least one friction enhancing layer disposed over the cover layer, wherein the at least one friction enhancing layer is disposed over at least a portion of the at least one full or partial central turn and no portion of the upper turn is covered by the friction enhancing layer; and
wherein the coiled anchor is configured to be implantable at the native valve with at least a portion of the at least one full or partial central turn of the coiled anchor positioned in a chamber of the heart and around valve leaflets of the native valve.
2. The device according to claim 1, wherein the cover layer comprises pores having a diameter of 30 to 100 microns.
3. The device according to any one of claims 1 and 2, wherein the cover layer extends at least along a portion of the coiled anchor that is configured to be in contact with a replacement valve.

4. The device of according to any one of claims 1-3, wherein the coiled anchor further comprises securing holes near each of the proximal and distal tips.
5. The device of claim 4 wherein the cover layer is secured to the coiled anchor with sutures extending through the securing holes of the coiled anchor and through the cover layer.
6. The device according to any one of claims 1-5, wherein the friction enhancing layer is connected to the cover layer by sutures and provides a coefficient of friction of at least 1.
7. The device according to any one of claims 1-6, wherein the friction enhancing layer is a braided material.
8. The device according to any one of claims 1-7, wherein the friction enhancing layer is a woven material.
9. The device according to any one of claims 1-8, further comprising a lower turn extending from a lower end of the at least one full or partial central turn.
10. The device according to any one of claims 1-9, further comprising at least two radiopaque markers positioned along the at least one full or partial central turn.
11. The device according to any one of claims 1-8, and 10, wherein the at least one full or partial central turn defines a diameter between 20 to 30 mm, wherein a lower turn extending from the central turn defines a diameter between 30 to 75 mm, and wherein the upper turn has a first axis diameter between 40 to 80 mm and a second axis diameter between 20 to 80 mm.
12. The device according to any one of claims 1-11, further comprising a suture removeably threaded through a bore at the proximal tip and configured to be connected to a pusher device within a delivery catheter to provide a means for retrieving the docking device.

13. The device of claim 12, wherein the suture is removeably threaded through the bore at a location along a length of the suture and then the suture ends are threaded through a space between the central point of the suture and the proximal end of the coiled anchor.
14. The device according to any one of claims 1-13, wherein the cover layer is a low friction cover layer, having a distal end and a proximal end, surrounding the coiled anchor and extending along a length of the coiled anchor, past the distal tip, and past the proximal tip, the low friction cover layer tapering to a rounded tip at its distal end and at its proximal end.
15. The device according to any one of claims 1-14, wherein the distal tip of the coiled anchor is tapered slightly radially inward in a direction tangential to a circular shape formed by the central turn.
16. A docking device for docking a prosthetic valve at a native valve of a heart, the docking device comprising:
 - a coiled anchor that comprises:
 - a proximal tip and a distal tip;
 - at least one full or partial central turn having a first thickness and defining a diameter;
 - an extension having a length extending from an upper end of the at least one full or partial central turn, the extension having a second thickness that is less than the first thickness;
 - an upper turn extending from an upper end of the extension, the upper turn having a third thickness that is greater than the second thickness;
 - a cover layer surrounding the coiled anchor along at least a part of the at least one full or partial central turn, and wherein the cover layer is connected to the coiled anchor;
 - at least one friction enhancing element that comprises a plurality of bulges on the surface of the coiled anchor or on the surface of the covering; and

wherein the coiled anchor is configured to be implantable at a native valve with at least a portion of the at least one full or partial central turn of the coiled anchor positioned in a chamber of the heart and around valve leaflets of the native valve.

17. The device of claim 16, wherein the cover layer extends at least along the portion of the coiled anchor that is configured to be in contact with a replacement valve.
18. The device according to any one of claims 16 and 17, wherein the coiled anchor further comprises securing holes near each of the proximal and distal tips, and wherein the cover layer is secured to the coiled anchor with sutures extending through the securing holes of the coiled anchor and through the cover layer.
19. The device according to any one of claims 16-18, further comprising a suture removeably threaded through a bore at the proximal tip and configured to be connected to a pusher device within a delivery catheter to provide a means for retrieving the docking device.
20. The device of claim 19, wherein the suture is removeably threaded through the bore at a location along a length of the suture and then the suture ends are threaded through a space between the central point of the suture and the proximal end of the coiled anchor.
21. A docking device for docking a valve prosthesis at a native valve of a heart, the docking device comprising:
a coiled anchor that comprises:
a proximal tip and a distal tip;
at least one full or partial central turn having a first thickness and defining a diameter;

an extension having a length extending from an upper end of the at least one full or partial central turn, the extension having a second thickness that is less than the first thickness;

an upper turn extending from an upper end of the extension, the upper turn having a third thickness that is greater than the second thickness;

at least one friction enhancing element that comprises a plurality of lock and key cutouts in the outer surface of the coiled anchor; and

wherein the coiled anchor is configured to be implantable at the native valve with at least a portion of the at least one full or partial central turn of the coiled anchor positioned in a chamber of the heart and around valve leaflets of the native valve.

22. The device of claim 21 wherein the lock cutouts are grooves formed in the outer surface of the coiled anchor, and the keys are protrusions extending outward from the coiled anchor, sized and shaped to fit into the lock cutouts.
23. The device according to any one of claims 21 and 22, further comprising a suture removeably threaded through a bore at the proximal tip and configured to be connected to a pusher device within a delivery catheter to provide a means for retrieving the docking device, wherein the suture is removeably threaded through the bore at a location along a length of the suture and then the suture ends are threaded through a space between the central point of the suture and the proximal end of the coiled anchor.
24. The device according to any one of claims 21-23, wherein the distal tip of the coiled anchor is tapered slightly radially inward in a direction tangential to a circular shape formed by the central turn, and wherein the proximal tip of the coiled anchor is tapered slightly radially inwardly and is pointed in an upward direction.