

SUMMARY

[005] Embodiments of improved prosthetic implant delivery assemblies are disclosed herein, as well as related methods and devices for such assemblies. In several embodiments, the disclosed assemblies are configured for delivering replacement heart valves into a heart of a patient.

[006] In one representative embodiment, a prosthetic implant delivery assembly can comprise a prosthetic implant comprising an expandable stent portion having a longitudinal axis extending from a first end portion of the stent to a second end portion of the stent, and an elongate catheter having a longitudinal axis extending from a proximal end portion of the catheter to a distal end portion of the catheter and a plurality of arms extending axially from the distal end of the catheter, wherein the first end portion of the stent is releasably and pivotably coupled to at least one of the arms of the catheter such that the stent can pivot about the at least one of the arms so that the longitudinal axis of the stent is tilted relative to the longitudinal axis of the catheter.

[007] In some embodiments, the first end portion of the stent comprises a plurality of apices which are circumferentially-spaced apart relative to each other, each of the arms of the catheter comprises an aperture at a distal end of the arm, and the apices extend through respective apertures of the arms.

[008] In some embodiments, the delivery assembly further comprises a plurality of elongate locking elements corresponding to the arms of the catheter, wherein each of the apices of the stent comprises a respective opening, and the locking elements are configured to extend through the openings of the apices of the stent, such that the locking elements releasably couple the arms of the catheter to the stent when the apices of the stent are inserted through the apertures of the arms. In some embodiments, at least one of the locking elements is axially moveable relative to another locking element. In some embodiments, a length of at least one of the locking elements is different than a length of another locking element.

[009] In some embodiments, at least one of the apertures of the arms has a different length than another aperture of the arms. In some embodiments, the catheter further

[023] FIG. 5A is a perspective view of the delivery assembly of FIG. 1 with the prosthetic implant in a compressed configuration.

[024] FIGS. 5B-5C are enlarged perspective views of the delivery assembly of FIG. 1 which show an area 5B, as indicated in FIG. 5A.

[025] FIG. 6 is a perspective view of an embodiment of a release catheter of the delivery assembly of FIG. 1.

[026] FIG. 7 is a perspective view of another embodiment of a release catheter of the delivery assembly of FIG. 1.

[027] FIG. 8 is a perspective view of another embodiment of a release catheter of the delivery assembly of FIG. 1.

[028] FIG. 9 is a perspective view of another embodiment of a release catheter of the delivery assembly of FIG. 1.

[029] FIG. 10 is a perspective view of another embodiment of a locking catheter of the delivery assembly of FIG. 1.

[030] FIG. 11 is a perspective view of another embodiment of a locking catheter of the delivery assembly of FIG. 1.

[031] FIGS. 12-16 are perspective views of the delivery assembly of FIG. 1 being used to deliver a prosthetic implant into a patient's heart, shown in partial cross-section.

[032] FIG. 17 is a perspective view of another embodiment of a prosthetic implant delivery assembly.

[033] FIG. 18 is a detail view of the prosthetic implant delivery assembly of FIG. 17.

[034] FIGS. 19-23 are perspective views of various configurations of the prosthetic implant delivery assembly of FIG. 17.

[035] FIGS. 24-25 are perspective views of another embodiment of a prosthetic implant delivery assembly.