

WHAT IS CLAIMED IS:

1. An asymmetrical mitral annuloplasty band adapted for implant against a mitral valve annulus, the mitral valve annulus having a posterior aspect to which a posterior leaflet attaches and an anterior aspect to which an anterior leaflet attaches, the annulus generally defining a D- or kidney-shape looking at an inflow side thereof with the anterior aspect being straighter than the more rounded posterior aspect and a minor axis intersecting and extending across the annulus between mid-points on the anterior and posterior aspects being shorter than a major axis perpendicular thereto intersecting and extending across the annulus, the shape of the annulus as looking from inflow side being generally symmetric about the minor axis, and wherein an anterior commissure and a posterior commissure are located on the annulus at the two junctions between the two leaflets with the anterior commissure located clockwise from the mid-point of the posterior leaflet and the posterior commissure located counter-clockwise from the mid-point of the posterior leaflet, comprising:

an elongated discontinuous body including an inner generally rigid core surrounded by a suture-permeable interface, the body defining a D- or kidney-shape looking at an inflow side thereof with two anterior segments extending on both sides of a posterior segment and a minor axis intersecting a mid-point on the posterior segment being shorter than a major axis perpendicular thereto intersecting and extending across the body, an imaginary extended shape of the body as looking from an inflow side being generally symmetric about the minor axis, the body defining an asymmetric shape looking at the inflow side thereof that generally conforms to a portion of the shape of the mitral annulus such that the posterior segment extends around the entire posterior aspect and the body continues in a clockwise direction in a first one of the anterior segments ending at a first free end located approximately at the intersection of the major axis and the annulus and in a second one of the anterior segments extending farther around in a counter-clockwise direction past the intersection of the major axis and the annulus into the anterior aspect and ending at a second free end.

2. The mitral annuloplasty band of claim 1, wherein a total circumferential span of the body extends between about 58–67% around the mitral annulus.

3. The mitral annuloplasty band of claim 1, wherein a first circumferential span of a portion of the body counterclockwise from the mid-point of the posterior aspect extends between about 37–42% around the mitral annulus, and a second circumferential span of a portion of the body clockwise from the mid-point of the posterior aspect extends between about 21–25% around the mitral annulus.

4. The mitral annuloplasty band of claim 1, wherein the body includes an upward bow centered at the mid-point of the posterior aspect.

5. The mitral annuloplasty band of claim 4, wherein the body has a partial saddle shape with a first high point at the upward bow, two low points located approximately at the first free end and at a location directly opposite the first free end, and a second high point at the second free end.

6. The mitral annuloplasty band of claim 1, wherein the first free end is adapted to be implanted adjacent the anterior commissure and the ring body extends in a counter-clockwise direction to the second free end within the anterior aspect.

7. An asymmetrical mitral annuloplasty band adapted for implant against a mitral valve annulus, the mitral valve annulus having a posterior aspect to which a posterior leaflet attaches and an anterior aspect to which an anterior leaflet attaches, the annulus generally defining a D- or kidney-shape looking at an inflow side thereof with the anterior aspect being straighter than the more rounded posterior aspect and a minor axis intersecting and extending across the annulus between mid-points on the anterior and posterior aspects being shorter than a major axis perpendicular thereto intersecting and extending across the annulus, the shape of the annulus as looking from inflow side being generally symmetric about the minor axis, and the annulus also defining a saddle shape where the annulus rises up toward the left atrium at mid-points of both the anterior aspect and the posterior aspect, comprising:

an elongated discontinuous body including an inner generally rigid core surrounded by a suture-permeable interface, the body defining a D- or kidney-shape looking at an inflow side thereof with two anterior segments extending on both sides of a posterior segment and a minor axis intersecting a mid-point on the posterior segment being shorter than a major axis perpendicular thereto intersecting and extending across the body, an imaginary extended

shape of the body as looking from an inflow side being generally symmetric about the minor axis, the body defining an asymmetric shape looking at the inflow side thereof that generally conforms to the shape of the mitral annulus such that the posterior segment extends around the entire posterior aspect and includes an upward bow corresponding with the rise in the posterior aspect, wherein the body extends clockwise along a first span in a first one of the anterior segments from a mid-point of the upward bow to a first free end and extends farther along a second span in a second one of the anterior segments in a counter-clockwise direction from a mid-point of the upward bow to a second free end past the intersection of the major axis and the annulus.

8. The mitral annuloplasty band of claim 7, wherein the body has a partial saddle shape with a first high point at the upward bow, two low points located approximately at the first free end and at a location directly opposite the first free end, and a second high point at the second free end.

9. The mitral annuloplasty band of claim 7, wherein a total circumferential span of the body extends between about 58–67% around the mitral annulus.

10. The mitral annuloplasty band of claim 7, wherein a first circumferential span of a portion of the body counterclockwise from the mid-point of the upward bow extends between about 37–42% around the mitral annulus, and a second circumferential span of a portion of the body clockwise from the mid-point of the upward bow extends between about 21–25% around the mitral annulus.

11. The mitral annuloplasty band of any of claim 7, wherein the first free end is adapted to be implanted at the annulus on the major axis.