

closed configuration, the leaflets can be pushed radially outward by the reverse flow of blood, thereby closing the plurality of discrete flow areas.

[0007] In some embodiments, each of the inflow edges extend between two points spaced circumferentially apart an interior circumference of the frame. The inflow edges of the adjacent leaflets can be joined together directly without the aid of a mechanical support member extending between the points.

[0008] In some embodiments, a pocket is formed between the leaflets, in the open configuration, which faces the outflow end and is bordered by the articulating edges and the outflow surfaces of the leaflets. In some embodiments, the pocket can be configured such that reverse flow entering into the pocket forces the leaflets radially outward.

[0009] In some embodiments, in the open configuration, the inflow edges and the leaflets together form a three-pointed star arrangement.

[0010] In some embodiments, in the closed configuration, the articulating edges are in contact with the frame and/or a skirt lining an interior surface of the frame.

[0011] In some embodiments, in the closed configuration, the outflow surfaces face the outflow end of the prosthetic valve, and the inflow surfaces face the inflow end of the prosthetic valve.

[0012] In some embodiments, the annular frame is a collapsible and expandable annular frame that is configured to be collapsed to a radially collapsed state for mounting on a delivery apparatus and expanded to a radially expanded state inside the body.

[0013] In some embodiments, the inflow edges of the leaflets have outer edge portions adjacent the frame, and the inflow edges define a central hub, which is at substantially the same longitudinal position relative to a longitudinal axis of the prosthetic valve as the outer edge portions.

[0014] ~~In another aspect, There is also disclosed~~ a method of transmitting blood through a prosthetic valve ~~is provided~~, comprising providing a prosthetic valve having a frame and a plurality of leaflets located between an inflow end and an outflow end of the frame. Each leaflet can have an

inflow surface, an outflow surface, an inflow edge and at least one articulating outflow edge. The method further comprises collapsing the plurality of leaflets in a radially inward direction to permit the forward flow of blood through the prosthetic valve; and expanding the leaflets radially outward towards an interior surface of the frame to substantially prevent the reverse flow of blood through the prosthetic valve.

[0015] ~~In some embodiments~~Preferably, a pocket is formed between the collapsed leaflets, wherein the pocket faces the outflow end.

[0016] Preferably~~In some embodiments~~, the expanding comprises causing the inflow surfaces to face the inflow end and causing the outflow surfaces to face the outflow end.

[0017] Preferably~~In some embodiments~~, the expanding comprises causing at least one of the articulating edges of each leaflet to contact the frame and/or a skirt lining an interior of the frame.

[0018] Preferably~~In some embodiments~~, the expanding comprises allowing reverse blood flow to enter into the pocket and force the leaflets radially outward.

[0019] Preferably~~In some embodiments~~, the collapsing creates multiple discrete flow areas between the leaflets and inside of the frame.

[0020] ~~In another aspect~~There is also disclosed a method of implanting a prosthetic valve ~~is provided~~, comprising implanting into a patient's body a prosthetic valve having a frame and a plurality of leaflets located between an inflow end and an outflow end of the frame. A pressure gradient in a first direction can cause the plurality of leaflets of the prosthetic valve to collapse radially inwardly to permit the forward flow of blood through the prosthetic valve, and a pressure gradient in a second direction can cause the plurality of leaflets to expand radially outward to substantially prevent the reverse flow of blood through the prosthetic valve.

[0021] ~~In some embodiments~~Preferably, the pressure gradient in the second direction causes inflow surfaces of the leaflets to face an inflow end of the prosthetic valve and outflow surfaces of the leaflets to face an outflow end of the prosthetic valve.

[0022] ~~Preferably in some embodiments,~~ the pressure gradient in the second direction causes at least one articulating edge of each leaflet to contact a frame of the prosthetic valve and/or a skirt lining an interior of the frame.

[0023] ~~Preferably in some embodiments,~~ the expanding of the plurality of the leaflets comprises expanding a pocket formed between the leaflets, the pocket facing the outflow end of the prosthetic valve.

[0024] ~~Preferably in some embodiments,~~ the radial collapsing of the plurality of leaflets creates multiple discrete flow areas between the leaflets.

[0025] The foregoing and other objects, features, and advantages of the disclosed technology will become more apparent from the following detailed description, which proceeds with reference to the accompanying figures.

BRIEF DESCRIPTION OF THE FIGURES

[0026] FIG. 1 is a perspective view of a prosthetic valve embodiment, in an open configuration.

[0027] FIG. 2 is a side view of the prosthetic valve embodiment of FIG. 1, in a closed configuration.

[0028] FIG. 3 is an outflow view of the prosthetic valve embodiment of FIG. 1, in an open configuration.

[0029] FIG. 4 is an inflow view of the prosthetic valve embodiment of FIG. 1, in an open configuration.

[0030] FIG. 5 is an outflow view of the prosthetic valve embodiment of FIG. 1, in a partially closed configuration.

[0031] FIG. 6 is an outflow view of the prosthetic valve embodiment of FIG. 1, in a closed configuration.

[0032] FIG. 7 is an inflow view of the prosthetic valve embodiment of FIG. 1, in a closed configuration.

4. The prosthetic valve of claim 3, wherein the pocket is configured such that reverse flow entering into the pocket forces the leaflets radially outward.
5. The prosthetic valve of claim 1, wherein, in the open configuration, the inflow edges and the leaflets together form a three-pointed star arrangement.
6. The prosthetic valve of claim 1, wherein, in the closed configuration, the articulating edges are in contact with the frame and/or a skirt lining an interior surface of the frame.
7. The prosthetic valve of claim 1, wherein in the closed configuration, the outflow surfaces face the outflow end, and the inflow surfaces face the inflow end.
8. The prosthetic valve of claim 1, wherein the annular frame is a collapsible and expandable annular frame that is configured to be collapsed to a radially collapsed state for mounting on a delivery apparatus and expanded to a radially expanded state inside the body.
9. ~~A method of transmitting blood through a prosthetic valve, comprising:
providing a prosthetic valve having an inflow end, an outflow end, an annular frame
defining a lumen therethrough and plurality of leaflets located between the
inflow end and the outflow end, each leaflet having an inflow surface, an
outflow surface, an inflow edge and at least one articulating outflow edge;
collapsing the plurality of leaflets in a radially inward direction to permit the
forward flow of blood through the prosthetic valve; and
expanding the leaflets radially outward towards an interior surface of the frame to
substantially prevent the reverse flow of blood through the prosthetic valve.~~
10. ~~The method of claim 9, further comprising:
forming a pocket between the collapsed leaflets, wherein the pocket faces the
outflow end.~~
11. ~~The method of claim 9, wherein the expanding comprises causing the inflow
surfaces to face the inflow end and causing the outflow surfaces to face the outflow end.~~

~~12. — The method of claim 9, wherein the expanding comprises causing at least one of the articulating edges of each leaflet to contact the frame and/or a skirt lining an interior of the frame.~~

~~13. — The method of claim 10, wherein the expanding comprises allowing reverse blood flow to enter into the pocket and force the leaflets radially outward.~~

~~14. — The method of claim 9, wherein the collapsing creates multiple discrete flow areas between the leaflets and inside of the frame.~~

~~15. — A method of implanting a prosthetic valve, comprising:
implanting a prosthetic valve in a patient's body, the prosthetic valve comprising an annular frame defining an inflow end, an outflow end, a lumen therethrough; and a plurality of leaflets located between the inflow end and the outflow end;~~

~~wherein a pressure gradient in a first direction causes the plurality of leaflets of the prosthetic valve to collapse radially inwardly to permit the forward flow of blood through the prosthetic valve; and~~

~~wherein a pressure gradient in a second direction causes the plurality of leaflets to expand radially outward to substantially prevent the reverse flow of blood through the prosthetic valve.~~

~~16. — The method of claim 15, further comprising:
forming a pocket between the collapsed leaflets, wherein the pocket faces an outflow end of the prosthetic valve.~~

~~17. — The method of claim 15, wherein the radial collapsing of the plurality of leaflets creates multiple discrete flow areas between the leaflets.~~

~~18. — The method of claim 15, wherein the pressure gradient in the second direction causes inflow surfaces of the leaflets to face an inflow end of the prosthetic valve and outflow surfaces of the leaflets to face an outflow end of the prosthetic valve.~~

19. — ~~The method of claim 15, wherein the pressure gradient in the second direction causes at least one articulating edge of each leaflet to contact a frame of the prosthetic valve and/or a skirt lining an interior of the frame.~~

20. — ~~The method of claim 16, wherein the expanding of the plurality of the leaflets comprises expanding the pocket.~~