

CLAIMS

1. — ~~A transseptal insertion device which is suitable for facilitating~~ for precise and safe transseptal insertion of a ~~needle or catheter~~ medical device through a cardiac septum, comprising:

~~a device housing;~~

~~a slidable body slidably disposed in the device housing, the slidable body comprising a pusher and a guide element extending from the pusher, the guide element extendable and retractable from a distal end of the device housing;~~

~~wherein the guide element defines an interior space that guides a needle or catheter for a device housing having a distal end and a proximal end and including an outer wall and an inner wall wherein said inner wall and said outer wall are fixedly connected together and said inner wall and said outer wall are stationary relative to each other and said inner wall and said outer wall define an annular gap therebetween and wherein said inner wall defines a central lumen extending between said proximal and distal ends and wherein the medical device is received within said central lumen of said device housing;~~

~~a slidable body positioned within said device housing annular gap, said slidable body having a distal end and a proximal end and defining a central lumen, configured to receive said device housing inner wall, said slidable body comprising a pusher and a guide element wherein said guide element is positioned on said slidable body distal end and said pusher extends within said device housing annular gap wherein said slidable body moves within said device housing annular gap from a first retracted position wherein at least a distal end of said pusher and said guide element are received within said device housing to a second advanced position wherein said guide element extends from said device housing distal end so as to contact the cardiac septum and wherein the medical device is configured to advance through said guide element for penetrating the cardiac septum.~~

2. ~~The transseptal insertion through a cardiac septum and the guide element is formed to include multiple,~~ device according to claim 1 wherein said device housing annular gap extends circumferentially within said device housing.

3. The transseptal insertion device according to claim 1 wherein a proximal end of said guide element is positioned within said device housing in said second advanced position.

~~4. The transseptal insertion device according to claim 1 wherein said guide element is a web comprising parallel, spaced-apart longitudinal elements~~members and ~~multiple, annular transverse elements~~members provided at spaced-apart intervals with respect to each other ~~along the~~wherein said longitudinal elements in which the longitudinal~~members~~ and said transverse elements~~members~~ define openings between the interior space and an exterior of the guide elementin said web.

~~Claim 2.~~

~~5. The device of claim 1, wherein the device provides access to the left atrium in implementation of a left atrial intervention.~~

~~Claim 3. The device of any of the preceding claims, wherein the transseptal insertion device is configured to be elongated yet has a relatively reduced length, and wherein the transseptal insertion device is configured to be turned within an atrium of the heart to achieve a correct orientation towards the cardiac septum~~according to claim 1 wherein said guide element is expandable.

~~Claim 4. The device of any of the preceding claims, wherein the guide element is made of nitinol.~~

~~Claim 5. The 6.~~ The transseptal insertion device according to claim 1 wherein said pusher comprises at least two pusher rods wherein said at least two pusher rods are radially displaced.

7. The transseptal insertion device according to claim 1 wherein said device housing distal end has a first diameter and said pusher has a second diameter in said second advanced position wherein said second diameter is greater than said first diameter.

8. The transseptal insertion device according to claim 1 wherein said medical device is a catheter.

9. The transseptal insertion device of any of the preceding claims, according to claim 1 wherein the~~said~~ guide element is formed as~~has~~ a web.

~~Claim 6. The device of any of the preceding claims, wherein device housing includes a housing interior~~distal and an annular housing gap surrounding the housing interior, wherein ~~the~~proximal end and is expandable in said second advanced position to a conical shape

wherein said distal end of said guide element is slidably disposed within the housing gap expanded relative to said proximal end of said guide element.

10. Claim 7.—The transseptal insertion device of any of the preceding claims, according to claim 1 wherein the device housing comprises:

- an outer housing wall,
- an inner housing wall,
- a housing interior formed by the inner housing wall, and
- an annular housing gap surrounding the housing interior.

Claim 8.—The device of any of the preceding claims, wherein the pusher said guide element further comprises:

- a front pusher ring,
- a rear pusher ring spaced apart from the front pusher ring, and
- at least one pusher rod extending between the front pusher ring and the rear pusher ring.

Claim 9.—The device of claim 8, wherein the one or more pusher rods extend between the front pusher ring and the rear pusher ring.

Claim anchor on a distal end thereof 10.—The device of claim 8, wherein the guide element extends from the front pusher ring of the pusher.

Claim 11.—The device of any of the preceding claims, further comprising multiple anchors, wherein the multiple anchors terminate the respective longitudinal webbing elements of the guide element for impingement against anchoring said guide element to the cardiac septum in insertion of a needle or catheter through an orifice in the septum said second advanced position.

Claim 12.—

11. —The transseptal insertion device of any of the preceding claims, according to claim 1 wherein at least one of the pusher and the guide element are inflatable.

Claim said 13.—The device of any of the preceding claims, wherein the device housing includes include an outer housing wail defining a housing interior and a pusher channel extending through the outer housing wall generally parallel and adjacent to the housing interior distal end is tapered.

12. The transseptal insertion device according to claim 1 further comprising an intermediate catheter configured for receipt of the medical device wherein said intermediate catheter is slidably positioned within said central lumen of said device housing.

~~Claim 14. The device of any of the preceding claims, wherein the guide element includes a pusher having an inflatable pusher rod slidably disposed in the pusher channel and an inflatable pusher ring terminating and disposed in fluid communication with the pusher rod.~~

~~Claim 15. The device of any of the preceding claims, wherein the guide element is expandable to a conical shape according to which a distal end of the webbed guide element has a larger diameter than a proximal end of the webbed guide element.~~

~~Claim 16. The device of any of the preceding claims, wherein the slidable body is used to remove an implanted mitral regulation device from the body of a subject.~~

~~Claim 17. The device of any of claim 16, wherein the slidable body is used to anchor onto the anterior and posterior leaflets of a mitral valve of a subject, and once anchored, exerts a mechanical, magnetic or electromagnetic lever that attaches to the implanted mitral regulation device.~~

~~Claim 18. The device of claim 8, wherein the slidable body stabilizes the mitral valve, while energy is delivered to the mitral valve and ablates the anterior and posterior leaflets, thereby releasing and removing the implanted mitral regulation device from the body of the subject.~~

~~Claim 19. The device of any of claims 16–18, wherein the slidable body ablates the anterior mitral leaflet prior to mitral valve implantation to prevent left ventricular outflow tract obstruction.~~

~~Claim 20. The device of any of claims 16–19, wherein the slidable body stabilizes the anterior mitral leaflet with a set of stabilizers which would be housed within the slidable body.~~

~~Claim 21. The device of claim 20, wherein the stabilizers stabilize the anterior mitral leaflet first, and afterwards, the slidable body delivers energy to ablate the anterior mitral leaflet.~~

13. The transseptal insertion device according to claim 1 wherein said slidable body includes an ultrasound transducer.