

Also, the features, components, steps, concepts, etc. described in examples in this summary and elsewhere in this disclosure can be combined in a variety of ways. Various features and steps as described elsewhere in this disclosure may be included in the examples summarized here.

[0006a] An aspect of the present disclosure provides a valve repair device clasp for repairing a native valve of a patient, the valve repair device clasp comprising:

- a fixed arm;

- a moveable arm;

- wherein the moveable arm is moveable relative to the fixed arm to form an opening between the moveable arm and the fixed arm; and

- an indicator arm coupled to one of the fixed arm and the moveable arm;

wherein the indicator arm is moveable through one of the fixed arm and the moveable arm to indicate whether a leaflet of the native valve is inserted into the opening between the fixed arm and the movable arm to at least a minimum insertion depth.

[0006b] Another aspect of the present disclosure provides a valve repair device for repairing a native valve of a patient, the valve repair device comprising:

- a paddle;

- a moveable clasp arm;

- wherein the paddle and the clasp arm are moveable to form an opening between the moveable clasp arm and the paddle; and

- an indicator arm coupled to the valve repair device;

wherein the indicator arm is moveable through one or more of the paddle and the moveable clasp arm to indicate whether a leaflet of the native valve is inserted into the opening between the paddle and the moveable clasp arm to at least a minimum insertion depth.

[0006c] Another aspect of the present disclosure provides a valve repair system comprising:

- a delivery catheter;

- a valve repair device coupled to the delivery catheter, the valve repair device comprising:

- a paddle;

- a moveable clasp arm;

- wherein the paddle and the clasp arm are moveable to form an opening

between the moveable clasp arm and the paddle; and
an indicator arm coupled to the valve repair device;

wherein the indicator arm is moveable through one or more of the paddle and the moveable clasp arm to indicate whether a leaflet of the native valve is inserted into the opening between the paddle and the moveable clasp arm to at least a pre-set insertion depth.

[0007] In one example embodiment, a heart valve treatment device or system is configured to detect aspects pertaining to valve leaflet insertion (e.g., depth of leaflet insertion, thickness of leaflet tissue captured, etc.). The device/system can have an indicator that moves, is positioned, and/or changes shape in response to engagement with the valve leaflet. When the position of the indicator indicates that the valve leaflet is properly positioned in the device/system, the device/system can be closed.

[0008] In one example embodiment, a heart valve treatment device/system or valve repair device/system for repairing a native valve of a patient includes a clasp and a leaflet indicator. The clasp (e.g., all or a portion thereof) is moveable to form an opening or leaflet receiving area. The opening or leaflet receiving area can be formed between two portions of the clasp (e.g., a fixed arm and a movable arm, etc.), between the clasp or a portion thereof and another portion of the device, between the clasp and a paddle of the device, between the clasp and an anchor of the device, between a movable arm of the clasp and a paddle of the device, etc. The leaflet indicator is moveable, is re-positionable, and/or changes shape or configuration in the opening or receiving area to indicate whether a leaflet of the native valve is inserted into the opening or receiving area to at least a minimum desired insertion depth and/or a minimum desired tissue thickness. The leaflet indicator can be configured the same as or similar to any of the indicators shown in any of the figures or described anywhere in this disclosure. For example, the leaflet indicator can comprise one or more indicator arms, one or more radiopaque markers, one or more springs, one or more levers, one or more snap-through portions, one or more tabs, one or more pads, one or more coils, one or more deflectable portions, one or more hoops or hoop-shaped portions, one or more flattenable indicators, one or more indicator wings, etc.

[0009] The heart valve treatment device/system or valve repair device/system can include one or more of the features or components described with respect to other devices shown in any of the figures or described anywhere in this disclosure. For example, in some implementations, the device/system includes one or more of an anchor portion, anchor, coaption portion, coaption element, paddle, pair of paddles, plurality of paddles, delivery

CLAIMS:

1. A valve repair device clasp for repairing a native valve of a patient, the valve repair device clasp comprising:
 - a fixed arm;
 - a moveable arm;
 - wherein the moveable arm is moveable relative to the fixed arm to form an opening between the moveable arm and the fixed arm; and
 - an indicator arm coupled to one of the fixed arm and the moveable arm;
 - wherein the indicator arm is moveable through one of the fixed arm and the moveable arm to indicate whether a leaflet of the native valve is inserted into the opening between the fixed arm and the movable arm to at least a minimum insertion depth.
2. The valve repair device clasp of claim 1, wherein the indicator arm is coupled to the moveable arm.
3. The valve repair device clasp of any of claims 1-2 wherein the indicator arm is configured to move through the moveable arm when the leaflet of the native valve is inserted into the opening between the fixed arm and the movable arm to at least the minimum insertion depth.
4. The valve repair device clasp of any of claims 1-3 wherein the indicator arm has a shaped portion.
5. The valve repair device clasp of claim 4 wherein the indicator arm is configured such that the shaped portion is inside outer boundaries of the clasp when the indicator arm is in a resting configuration and no leaflet has reached the minimum insertion depth.
6. The valve repair device clasp of any of claims 4-5 wherein the indicator arm is configured such that the shaped portion is pressed through an opening in the moveable arm when the leaflet of the native valve is inserted into the opening between the fixed arm and the movable arm to at least the minimum insertion depth.

7. The valve repair device clasp of any one of claims 4-6 wherein the shaped portion is round, coiled, semi-circular, ovoid, or polygonal.
8. The valve repair device clasp of any one of claims 4-7 wherein the moveable arm and the shaped portion are configured to be positioned on an atrial side of the leaflet of the native valve.
9. A valve repair device for repairing a native valve of a patient, the valve repair device comprising:
 - a paddle;
 - a moveable clasp arm;
 - wherein the paddle and the clasp arm are moveable to form an opening between the moveable clasp arm and the paddle; and
 - an indicator arm coupled to the valve repair device;
 - wherein the indicator arm is moveable through one or more of the paddle and the moveable clasp arm to indicate whether a leaflet of the native valve is inserted into the opening between the paddle and the moveable clasp arm to at least a minimum insertion depth.
10. The valve repair device of claim 9, wherein the indicator arm is coupled to the moveable arm.
11. The valve repair device of any of claims 9-10 wherein the indicator arm is configured to move through the moveable arm when the leaflet of the native valve is inserted into the opening between the fixed arm and the movable arm to at least the minimum insertion depth.
12. The valve repair device of any of claims 9-11 wherein the indicator arm has a shaped portion.

13. The valve repair device of claim 12 wherein the indicator arm is configured such that the shaped portion is between the moveable clasp arm and the paddle when the indicator arm is in a resting configuration and no leaflet has reached the minimum insertion depth.
14. The valve repair device of any of claims 12-13 wherein the indicator arm is configured such that the shaped portion is pressed through an opening in the moveable arm when the leaflet of the native valve is inserted into the opening between the fixed arm and the movable arm to at least the minimum insertion depth.
15. The valve repair device of any one of claims 12-14 wherein the shaped portion is round, coiled, semi-circular, ovoid, or polygonal.
16. The valve repair device of any one of claims 12-15 wherein the moveable arm and the shaped portion are configured to be positioned on an atrial side of the leaflet of the native valve.
17. A valve repair system comprising:
 - a delivery catheter;
 - a valve repair device coupled to the delivery catheter, the valve repair device comprising:
 - a paddle;
 - a moveable clasp arm;
 - wherein the paddle and the clasp arm are moveable to form an opening between the moveable clasp arm and the paddle; and
 - an indicator arm coupled to the valve repair device;
 - wherein the indicator arm is moveable through one or more of the paddle and the moveable clasp arm to indicate whether a leaflet of the native valve is inserted into the opening between the paddle and the moveable clasp arm to at least a pre-set insertion depth.
18. The valve repair system of claim 17, wherein the indicator arm is coupled to the moveable arm.

19. The valve repair system of any of claims 17-18 wherein the indicator arm is configured to move through the moveable arm when the leaflet of the native valve is inserted into the opening between the fixed arm and the movable arm to at least the pre-set insertion depth.
20. The valve repair system of any of claims 17-19 wherein the indicator arm has a shaped portion.
21. The valve repair system of claim 20 wherein the indicator arm is configured such that the shaped portion is between the moveable clasp arm and the paddle when the indicator arm is in a resting configuration and no leaflet has reached the pre-set insertion depth.
22. The valve repair system of any of claims 20-21 wherein the indicator arm is configured such that the shaped portion is pressed through an opening in the moveable arm when the leaflet of the native valve is inserted into the opening between the fixed arm and the movable arm to at least the pre-set insertion depth.
23. The valve repair system of any one of claims 20-22 wherein the shaped portion is round, coiled, semi-circular, ovoid, or polygonal.
24. The valve repair system of any one of claims 20-23 wherein the moveable arm and the shaped portion are configured to be positioned on an atrial side of the leaflet of the native valve.